# Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction Part reduction alternatives in I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the the vector attractions reduction pathogen requirements, requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



## ANALYTICAL RESULTS

## CHEYENNE BOPU WATER REC. LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 07/23/14 Date Received: 07/23/14 Sample Location: Zone D

Sample Location: Zone D Sample Matrix: Compost Sampled By: CB

Date Reported: 8/01/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 07/30/14

Analyst(s): kl

EPA Method/Total Solids: SM 19<sup>th</sup> Ed 2540B EPA Method/Volatile Solids: SM 19<sup>th</sup> Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	74.4	35.3	NA
2	79.0	36.4	NA
3	66.5	37.4	NA
4	73.2	39.2	NA
5	69.7	41.1	NA

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = Not Analyzed

Kent Loader, Laboratory Supervisor

Date:

8-1-14

## <u>Dry Creek WRF Laboratory</u> <u>For: TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

Quality Assurance/Quality Control OA/QC

Date: 7-23-14 | Time: 9/50 | [] (AM)[] PM

# Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 7-23-14 Time: 9:50 [AM/] PM

# Analytical Records From: (Chevenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- [] Date and time of samples analysis
- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163

Ph: 307-635-3163 Fax: 307-635-6833

- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Date: 7-23-14 Time: 9',50 [] [AM] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

	Date and time of sample
[]	Name of analyst
[]	Analytical methods used
	Analyses and calculation results properly documented or verified
[]	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[]	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
	Analytical quality assurance/quality control (QA/QC) available
	Analytical results available
[]	Chain of custody record

Zone: D | Rows: 1 - 5 | Date: 7-23 | Time: 9/50 [] AM [] PM

# Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: 1 Rows: 1 - 5 Date: 7-23-14 Time: 9 150 [] AM [] PM

Project Name: $\frac{15.0501.55}{1.05}$ .
Location: Dry Creek WRF.
Address: 7911 Camp Slook Al.
City: Cheyenne   State: WY   Zip Code: 2007.
Samples Collected by: Child BaubW. [Date/Time: 7-23-14/950 Am
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: NY CVECK URF.
Address: 8911 Compstons Rd.
City: Cheyerne,   State: Cy   Zip Code: 8200%
Name of Analyst:
This Certification is signed by:
Date: 12,17-14 Time: // JAM [] PM



Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	1	of	1	
. ~5~		_ ~	1	

Client's Name:	Crestu	ONF Cont	act Name:_						_ 8	Sampler's	Name (if o	ther than Contact):_	
Report Required F	or: 12 / //	13		Number of	ANAL	YSIS	REC	QUEST	1	How	Sample	Other	Analysis
	11 17	1 2 -		Containers Sample Type						Preserved	Туре	Information	Completed
1011 C	1) MOLUS	1-7		AWSVBO									
				<u>Air Water</u>						HNO3 H2SO4	Grab or	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
				Soils/Solids Vegetation						4ºC HCL	Composite	,	,
		1		<u>B</u> ioassay						None			
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	<u>O</u> ther MATRIX	1 1/					NIA	C		
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7													
Custody Record <u>MUST</u> be	Relinquished by:	2+ ),,		Date/Time:	7-23 7-1		Rece	ived by:	Terripi Terripi 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -				Date/Time:
Signed	Sample Disposal:	Return to	client:		Labo			\	ŀ	<u> </u>		Log#	000
	ID#	J. L	1 130	Permit	#	ÇΛ.	16	= (4)	65	0007			

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

# Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - (VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if (including necessary) practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction I.C.3, reduction alternatives in Part the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction Part I.C.3, the management reduction alternatives in practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there significant penalties for false certification including the possibility of imprisonment.



## ANALYTICAL RESULTS

## CHEYENNE BOPU WATER REC. LABORATORY

Chevenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 07/23/14

Date Received: 07/23/14

Sample Location: Zone E

Sample Matrix: Compost

Sampled By: CB

Date Reported: 8/01/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 07/30/14

Analyst(s): kl

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	72.9	33.4	NA
2	85.3	28.4	NA

**Comments:** 

All data meets AlQC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

Page 1 of 1

## <u>Dry Creek WRF Laboratory</u> <u>For: TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

## (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

**Quality Assurance/Quality Control OA/QC** 

Date: 7-23-14 | Time: 10120 | [] [M] PM

# Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 7-23-14   Time: 10, 20   [] AM ]] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis	
[] Name of analyst	
[] All analyses are reported on dry weight basis	
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833	
[] Analytical quality assurance/quality control (QA/QC) availab	le
[] Analytical results available	

[] Chain of custody record

Date: 9-23-14 Time: 10:20 [] AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: F | Rows: 1 - 2 Date: 7-23-14 Time: 10 (20) [] AM [] PM

# Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: F | Rows: 1 - 2 | Date: 7-23-14 | Time: 1020 [] AM [] PM

Project Name: 15/050/id9
Location: Dry Creek WA/2.
Address: 89/1 Camp 5 Tool Rd.
City: ( Reyerne   State: WY   Zip Code: 8207.
Samples Collected by: Chat Bould. [Date/Time: 7-23-14/10/30HM
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creck WRF.
Address: 89/1 Camp 5700/Rd
City: Cheyenne   State: 4/4   Zip Code: 800/.
Name of Analyst:
This Certification is signed by:
Date: 12.17-11 Time: [   JAM [] PM



Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page of	of
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Client's Name:			tact Name:_				-	<i>j</i> ,				Sampler's	Name (if o	ther than Contact):_	
Report Required I		-		Number of Containers	AN	ALY	'SIS 	RE	QUE	STI 	ED	How Preserved	Sample <u>Type</u>	Other <u>Information</u>	Analysis Completed
				Sample Type A W S V B O <u>A</u> ir <u>W</u> ater <u>S</u> oils/ <u>S</u> olids <u>V</u> egetation <u>B</u> ioassay								HNO3 H2SO4 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN		Collection Date	Collection Time	<u>O</u> ther	74	14							(-		
(Name, Local	ie Ryw	-7-28	10. K	MATRIX	T.	3.0.4						K/A			
2	1 1 2	4										7			
3			*										•	`	
4															
5												:			
6															****
7												1			
Custody Record MUST be	Relinquished by:			Date/Time: 7-23 Received by:							7	Date/Time:			
Signed	Sample Disposal:	Return t	o client:		L	ab d	ispos	al:_						Log#	00
	ID# 127/5L = 2 > 931/ Permit# 127 / (~ - 6 , 000 2														

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

# Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

# Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 05/29/14 Date Received: 05/29/14 Sample Location: Zone A

Sample Matrix: Compost

Sampled By: CB

Date Reported: 6/24/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 06/03/14

Analyst(s): mw

EPA Method/Total Solids: SM 19<sup>th</sup> Ed 2540B EPA Method/Volatile Solids: SM 19<sup>th</sup> Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

			Fecal Coliform/
Row #	<b>Total Solids %</b>	<b>Volatile Solids%</b>	Dry Gram Sludge
1	66.9	25.4	NA
2	71.0	23.4	NA
3	64.4	27.5	NA
4	63.6	36.6	NA
5	66.6	24.5	NA
6	64.5	37.5	NA
7	63.3	36.8	NA -
8	69.3	33.3	NA
9	69.9	35.4	NA

### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

6-24.14 Date:

## <u>Dry Creek WRF Laboratory</u> <u>For: TS & VS</u>

Identification Reporting: No. WYSL -22934

Permit No. WYG - <u>650002</u>

## (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

**Quality Assurance/Quality Control OA/QC** 

Date: 5-29-11/ | Time: 9100 | [AM] PM

# Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 5-29-11/ Time: 9; W [AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available

[] Chain of custody record

Date: 6-29-11 Time:  $9/\omega$  []AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[]	Date and time of sample
	Name of analyst
	Analytical methods used
[]	Analyses and calculation results properly documented or verified
[]	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
()	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available
[]	Chain of custody record

Zone: A Rows: A - A Date: A Time: A Time: A [] PM

# Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Project Name: 13 10 50 / 1 d 5.
Location: Dry Creek WRF.
Address: 89 11 Camp 5700/Rd.
City: Cheyen   State: Ly   Zip Code: 7 20 7.  Samples Collected by: Chu Baubla Date/Time: 5-29-14/910017.
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.  Address: 8911 Camp 5 tool Rd.
Address: 8911 Camp 5 tool Rd.
City: Cheyenne   State: Wy   Zip Code: 82007.
Name of Analyst: Keyt Logde.
This Certification is signed by:
Date: 8-5-14   Time: 10:30   AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Page		of	VIII.

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Slient's Name: Sampler's Name (if other than Contact):										
Report Required F	or: 15,0501	11/		Number of Containers	ANALYSIS	REQUESTED	How Preserved	Sample Type	Other Information	Analysis Completed
201-11	Row 1	7		Sample Type A W S V B O Air <u>W</u> ater Soils/Solids Vegetation Bioassay			HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	Other MATRIX	BU			,		
10 2000	4 ROW	5-27	7, 4H	Marie Contract			HIAH	9		
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Signed	Sample Disposal:	Return to	client:		Lab dispos	al:			Log#	812
ID#										

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

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Re	port Required	For: / 10:0	.16		Number of Containers	AN	ALY	'SIS 	RE	QUI	EST 	i	How <u>Preserved</u>	Sample Type	Other Information	Analysis Completed
		A Rows			Sample Type A W S V B O Air <u>W</u> ater Soils/Solids Yegetation Bioassay								HNO3 H2SO4	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
	SAMPLE IDEN (Name, Loc		Collection Date	Collection Time	<u>O</u> ther MATRIX	13	V.									
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7																
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	Signed	Sample Disposal:	Return to	o client:	Lab disposal:										Log# 8.3	
	ID#															

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

**Pink - Client** 

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management (if practices part I.D necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, management and the practices the restrictions have been met. I am aware that significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 05/29/14

Date Received: 05/29/14 Sample Location: Zone C

Sample Matrix: Compost

Sampled By: CB

Date Reported: 6/24/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 06/03/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

			Fecal Coliform/
Row #	<b>Total Solids</b> %	Volatile Solids %	Dry Gram Sludge

.1	68.0	31.3	NA
2	70.7	26.6	NA
3	70.2	30.4	NA
4	64.1	33.7	NA
5	59.0	35.2	NA
6	66.4	34.5	NA
7	63.1	33.5	NA

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

6.24.14

### **Dry Creek WRF Laboratory For: TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Chevenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

Quality Assurance/Quality Control OA/QC

Date: 5-29-14 | Time: 9'120 | [] AM [] PM

## Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, weather permitting.
[] Chain of custody recorded
$oldsymbol{\cdot}$
Date: $5-29-14$   Time: $9',20$   [] 6M [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

	Date	and	time	of	samp	les	analy	ysis
[]	Nam	e of	analy	st				

- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Date: 5-29-14 Time: 9:20 [] AM[] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: C | Rows: [ - 7] Date: 5-29-14 Time: 9 124 [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: 6 | Rows: 1 - 7 | Date: 6 - 29-14 Time: 9:24 [] AM [] PM

Project Name: B1050/1d -
Location: DVY CVERTE WRF.
Address: 3911 Campstoul Rd.
City: Cheyene State: Wy Zip Code: 72-007.
Samples Collected by: Chat Berbul [Date/Time: 5-29-14/9/2017)
//
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 89// Campstaul Rd.
City: Cheyenne   State: Wy   Zip Code: 82007.
Name of Analyst: Kent Cook.
This Certification is signed by:
Date: 8-5-14   Time: 10:30   AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Client's Name:	v / / 1 2 24	Cont	act Name:_	r/d	/ 	1,	<u> 1844  </u>	44	ا ا الرام الرام ا	Sampler's	Name (if o	ther than Contact):_	
Report Required	For: Julie 1,	10,		Number of Containers Sample Type		LYSIS	RE	QUES	TED 	How Preserved	Sample Type	Other <u>Information</u>	Analysis Completed
7011 E	C Paulu	// )-	7	A W S V B C Air <u>W</u> ater Soils/Solids Vegetation Bioassay						HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
	ENTIFICATION	Collection	Collection	<u>O</u> ther	7					110.10			
(Name, Lo	ocation, etc.)	Date	Time	MATRIX	17 1				┦—				
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Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction alternatives in Part I.C.3, the management (if necessary) (including practices in part I.D practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the the vector attractions reduction pathogen requirements, management practices and the requirements, the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Chevenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163

Fax: 307-635-6833

Date Sampled: 05/29/14

Date Received: 05/29/14 Sample Location: Zone D

Sample Matrix: Compost

Sampled By: CB

Date Reported: 6/24/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 06/03/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	60.7	38.2	NA
2	62.1	38.7	NA
3	69.1	36.8	NA
4	65.2	38.0	NA
5	62.9	37.5	NA

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

6-24-14

### **Dry Creek WRF Laboratory For: TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

**Quality Assurance/Quality Control OA/QC** 

Date: 5-29-14 | Time: 9'(00) | AM | PM

### Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 5-29-14 Time: 9100 [[AM] [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 6-29-11 Time: 9:00 [] M[] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: D | Rows: 1 - 5 | Date: 5-29-14 | Time: 9:00 | [] XM/[] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: 1 - 5 Date: 5-29-14 Time: 9:00 [] AM [] PM

Project Name: B10501/d5
Location: Dry Creek WRF.
Address: 8911 CampstoolRd,
City: Cheyenne   State: Uy   Zip Code: 8 JOO. 7
Samples Collected by: Chut Benker (Date/Time: 5-2 4-14 / 9:00 hrs
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 891/ Camp5700/8d.
City: Cheyenne   State: Wy   Zip Code: 82007.
Name of Analyst: feat body.
This Certification is signed by:
Date: 8/5/14 Time: 10.30 LYAM [] PM



Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page \_\_\_\_\_ of \_\_\_\_

Client's Name:				00 g v s			11/11/2	h		Sampler's	Name (if o	ther than Contact):_	
Report Required For:	- HUW	5-1-5	Soils/Solids Vegetation		ALY	SIS	REQ	JEST	ED	HCL	Sample Type Grab or Composite	Other <u>Information</u> (pH, Field Analysis, etc.)	Analysis <u>Completed</u> Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collecti Date		<u>B</u> ioassay <u>Q</u> ther MATRIX	15	i,	2				None			
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7													
Custody Record MUST be	ру:	Prunt	Date/Time:			î	Receiv	ed by					Date/Time:
Signed Sample Dispos		um to client:				spos	al:					Log#	015

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction alternatives in Part I.C.3, the (if necessary) (including practices in part I.D practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for possibility false certification including the imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 05/29/14 Date Received: 05/29/14

Sample Location: Zone E

Sample Matrix: Compost

Sampled By: CB

Date Reported: 6/24/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 06/03/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	63.5	35.4	NA
2	72.9	30.9	NA

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

6.24.14

### **Dry Creek WRF Laboratory For: TS & VS**

Identification Reporting: No. WYSL -22934

Permit No. WYG - <u>650002</u>

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 5-29-14 | Time: 10:00 | [] AM[] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 5-29-14   Time: 10'00   [] A[M]] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

] Date and time of samples analysis
] Name of analyst
] All analyses are reported on dry weight basis
Pry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
Analytical quality assurance/quality control (QA/QC) available
Analytical results available

[] Chain of custody record

Date: 5-29-14 Time: 10,00 [] AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

	Date and time of sample
[]	Name of analyst
	Analytical methods used
	Analyses and calculation results properly documented or verified
[]	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[]	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available
[]	Chain of custody record

Zone:  $\boxed{E}$  Rows:  $\boxed{-2}$  Date:  $\boxed{5-29-1}$  Time:  $\boxed{0.00}$  []  $\boxed{M}$  PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone:  $\boxed{E}$  Rows:  $\boxed{-2}$  Date:  $\boxed{5-29-14}$  Time:  $\boxed{U^2W}$  [] AMV] PM

Project Name: 15/050 sid 5
Location: Dry Creek WRF.
Address: 89/1 CampsTal Rd.
City: Cheyenne State: Ly Zip Code: 82007.
Samples Collected by: Chif Boubel Date/Time: 5-29-14/10/02
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Doy Creek WRF.
Address: 8911 Can p5700/Rd,
City: Chexenne   State: Wy   Zip Code: \$3007.
Name of Analyst: feat Coade.
This Certification is signed by:
Date: 8/5//4 ] Time: 030 ] AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

	/		1
Page	1	of	_/

Client's Name:	10,201	Cont	act Name:_			1	×1 =	1	;	_	Sampler's	Name (if o	ther than Contact):_	
Report Required	1 310701			Number of Containers		ALY	SIS	REQU	JES1	ED	How <u>Preserved</u>	Sample <u>Type</u>	Other Information	Analysis Completed
	E Lung		)-·	Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay							HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Loc		Collection Date	Collection Time	<u>O</u> ther MATRIX	ĵ.	U.		:						
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Custody Record <u>MUST</u> be	Relinquished by:			Date/Time:	14	11	F	leceiv	ed by		May		·	Date/Time:
Signed	Sample Disposal:	Return to	o client:		_ La	ıb dis	sposa	l:	*				Log#	105
ID#\_\/\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\														

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

### Attachment: #6. Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163

Fax: 307-635-6833

Date Sampled: 03/26/14

Date Received: 03/26/14 Sample Location: Zone A

Sample Matrix: Compost

Sampled By: CB

Date Reported: 5/23/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 03/27/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

#### Fecal Coliform/

5.23-14

Row#	<b>Total Solids %</b>	<b>Volatile Solids%</b>	Dry Gram Sludge
1	74.3	24.4	NA
2	73.1	24.4	NA
3	70.3	33.6	NA
4	66.5	44.3	NA
5	69.5	31.1	NA
6	68.3	43.2	NA
7	64.9	34.9	NA
8	64.5	46.2	NA
9	65.9	49.1	NA

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All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

## **Dry Creek WRF Laboratory For: TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-26-14 | Time: 10:00 | [] AM [] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 3-26-14   Time: 10:00   [] AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis

[] Name of analyst

[] All analyses are reported on dry weight basis

[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

[] Analytical quality assurance/quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 3-26-11 Time: 10100 [] AM] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

	Date and time of sample
[]	Name of analyst
	Analytical methods used
	Analyses and calculation results properly documented or verified
	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[]	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available
[]	Chain of custody record

Zone: A | Rows: 1 - 9 Date: 3-26-14 Time: 10:00 [] XM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: A | Rows: 1 - 9 | Date: 3-26-14 Time: 10:00 | [] AM [] PM

Project Name: B1050 lids
Location: Dry Oreck WRF.
Address: 8911 Campstod/Rd.
City: Cheyenre   State: Wy   Zip Code: 82007.
Samples Collected by: Chet Bewell Date/Time: 3-21-14/10/10
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 89/1 Camps Tool Rd.
City: Chejenne State: [1] Zip Code: 8207.
Name of Analyst: Kent Local .
This Certification is signed by:
Date: 8/14 ] Time: 10:30 ] [PM

### **Cheyenne Board of Public Utilities Water Reclamation Laboratory**

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

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The	or: 10501116		Number of Containers Sample Type AWSVBO					ESTED	Preserved HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	Sample	Other <u>Information</u> (pH, Field Analysis, etc.)	Analysis <u>Completed</u> Yes / No (Lab use only)	
SAMPLE IDEN (Name, Loca		Date	Collection Time	<u>O</u> ther MATRIX	73	US				110/10			
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Signed	Sample Disposal:	Retum to cl	lient:		<u>L</u> a	ab di	sposal	=				Log#	

Copies to: White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	2	of	2	
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70110 A ROWS 16+19	· A Rous 8-9		4 Rous 8-9											HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
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### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

#### Attachment: #6.

#### Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 03/26/14 Date Received: 03/26/14

Sample Location: Zone C Sample Matrix: Compost Sampled By: CB

Date Reported: 5/23/14
Date Fecal Analyzed: NA

Date Solids Analyzed: 03/27/14

Fecal Coliform/

NA

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

69.0

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Dry Gram Sludge
1	66.5	37.6	NA
2	72.2	32.2	NA
3	65.7	34.5	NA
4	71.6	40.8	NA
5	66.7	43.0	NA
6	57.9	46.3	NA

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = Not Analyzed

42.9

Kent Loader, Laboratory Supervisor

5,23-14 Date:

Page 1 of 1

### Dry Creek WRF Laboratory For: TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

Quality Assurance/Quality Control OA/QC

Date: 3-26-11 | Time: 10100 | [] AM | PM

## Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 3-26-14   Time: 10100   [] (M) PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 3-26-14 Time: 10400 [] (M) PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: C. | Rows: | - | Date: 3-26-| Time: | O'OO | [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: Rows: 1 - 7 Date: 3-26-14 Time: 0'00 [] AM [] PM

Project Name: B1051d5
Location: Dry Creek WAF
Address: 89/1 Campstoul Rd.
City: Cheyenne   State: (Wy   Zip Code: 82007.
Samples Collected by: Chit Beukell [Date/Time; 3-26-11//0/0/hm
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek LURF.
Address: 8911 CumpstoolRd.
City: Chexenne State: Liy   Zip Code: 800   8007
Name of Analyst: Kent Local .
This Certification is signed by:
Date: 8/5/14   Time: 10: 30   JAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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			# LU		act Name:_	Alt		11	, 1, a d	. 7	1	Sampler's	Name (if o	ther than Contact):_	
			10,011			Number of Containers		ALY	SIS R	EQUE	STE	How Preserved	Sample <u>Type</u>	Other Information	Analysis Completed
7	75 8 VS				Sample Type A W S V B O Air <u>W</u> ater <u>S</u> oils/ <u>S</u> olids <u>V</u> egetation <u>B</u> ioassay			HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)				
SAM	IPLE IDE (Name, Loc			Collection Date	Collection Time	Other MATRIX	15	(x)							
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Custody Record <u>MUST</u> be Signed		Relinqu	Relinquished by:				Date/Time: 2. 1/1/ Received by:						l L		Date/Time:
		Sample	Sample Disposal: Return to client: Lab disposal:										Log#	703	
		ID#_	NIV	1	7 93/7	Permi	t #	4	* /1.	WI	garan sa	- 600	007		

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Attachment: #5.

Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

#### Attachment: #6.

#### Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction the requirements, the management practices and restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 03/26/14

Date Received: 03/26/14 Sample Location: Zone D

Sample Matrix: Compost

Sampled By: CB

Date Reported: 5/23/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 03/27/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	66.5	37.6	NA
2	72.2	32.2	NA
3	65.7	34.5	NA
4	71.6	40.8	NA
5	66.7	43.0	NA
6	57.9	46.3	NA
7	69.0	42.9	NA

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

5.23·14 Date:

Page 1 of 1

## Dry Creek WRF Laboratory For: TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

Quality Assurance/Quality Control OA/QC

Date: 3-26-14 | Time: 10400 | [] AM/[] PM

## Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 3-26-14   Time: 10100   [] [M] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 3-26-/4 Time: 10:00 [] AM/] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Date and time of sample	
Name of analyst	
Analytical methods used	
Analyses and calculation results properly documented or verified	
All analysis are reported on dry weight basis with the exception of volatile so or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bag 3150 grams).	
Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.	or
Analytical quality assurance/quality control (QA/QC) available	
Analytical results available	
Chain of custody record	

Zone: D | Rows: \_\_\_\_ - \_\_\_ Date: \_\_\_\_ \_\_\_ Time: \_\_\_\_ / O / W [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: | Rows: | - 5 | Date: 3-26/4 Time: 10:00 | [] AM [] PM

Project Name: Brog 050/ids.
Location: Dry Creek wat.
Address: 81/1 Campstool Rd.
City: Cheyenne   State: Ly   Zip Code: \$2007.
Samples Collected by: Chilf Bubel. [Date/Time: 3-26-14/10'co.]
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry CVECK WRF.
Address: 8911 CampstoolRd.
City: Che Jenne State: W Zip Code: 8207.
Name of Analyst: Kent Lowes.
This Certification is signed by:
Date: 8-5-14 Time: 10:30 JTAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	of	/
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Clier	nt's Name:	V Cirot	Cont	act Name:_	6/11	d L	1	<i>)</i>		N. J.			Name (if o	other than Contact):_	
Rep		For: D. Rose		sanger l	Number of Containers Sample Type		ALY	SIS	REC	UES	TED	How Preserved	Sample Type	Other <u>Information</u>	Analysis <u>Completed</u>
		メンジ	/ ) } ***	<i></i>	AWSVBO <u>Air Water</u> <u>Soils/Solids</u> <u>Vegetation</u> <u>Bioassay</u>							HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
	SAMPLE IDEN (Name, Local		Collection Date	Collection Time	<u>O</u> ther MATRIX	15	U								25
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	Signed	Sample Disposal:	Return to			La	ıb di:	sposa	ıl:			<u>.</u>		Log#	794
	ID#														

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

### Attachment: #6. Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives Part in I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 03/26/14 Date Received: 03/26/14 Sample Location: Zone E

Sample Matrix: Compost

Sampled By: CB

Date Reported: 5/23/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 03/27/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/ Row# **Total Solids % Volatile Solids% Dry Gram Sludge** 

1	63.5	35.1	NA
2	67.0	40.4	NA
3	69.8	31.9	NA
4	70.0	37.1	NA
5	63.7	36.1	NA

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

5.23-14

Page 1 of 1

#### <u>Pry Creek WRF Laboratory</u> <u>For: TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-26-17 | Time://0100 | [] (M) [] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 3-26-14   Time: 10:00   [VAM] [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 3-26-/Y Time: 10:00 1[]AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: PRows: 1 - 5 Date: 3-26-/4 Time: 10:00 [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: E | Rows: 1 - 5 | Date: 3-26 - / PTime: 10:00 | [] AM [] PM

Project Name: 18/0501/d5
Location: Dry Creck WRF
Address: 8911 Campstoul Rd.
City: Cheyenne   State: (1; 4   Zip Code: \$\frac{7}{2}\$.
Samples Collected by: Chat Bound Date/Time: 3-26-14/10c
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WR/
Address: 81// Campstac/Ad.
City: Cheypne State: Wy Zip Code: 82007.
Name of Analyst: Kent Godd.
This Certification is signed by:
Date: 8/5/14   Time: 10:30   PAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	/	of	
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Client's Name:	Later has the	Con	act Name:_							Sampler's	Name (if o	ther than Contact):_	
Report Required I				Number of Containers	ANAI	YSIS	REQ	UES1	ED	How Preserved	Sample <u>Type</u>	Other <u>Information</u>	Analysis <u>Completed</u>
75	E KHU. 4 U9			Sample Type A W S V B O Air <u>W</u> ater <u>S</u> oils/ <u>S</u> olids <u>V</u> egetation <u>B</u> ioassay						HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	Other MATRIX	BU	4				None			
1 - (1)	i sigi	1 ka 1 M	9:4:5 1Am	Land And						1917	6		
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6													
7													
Custody Record <u>MUST</u> be	Relinquished by:	VF 1	ju	Date/Time:	r). WA		Receiv			n Of			Date/Time:
Signed	Sample Disposal:	Return to	client:		Lab	dispos	al:					Log#	735

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction in reduction alternatives Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163

Fax: 307-635-6833

Date Sampled: 01/21/14

Date Received: 01/21/14

Sample Location: Zone A

Sample Matrix: Compost

Sampled By: CB

Date Reported: 3/12/14

Date Fecal Analyzed: NA

Date Solids Analyzed: 01/23/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/

Row#	<b>Total Solids %</b>	Volatile Solids%	Dry Gram Sludge
1	72.1	26.9	NA
2	73.9	34.2	NA
3	68.1	30.9	NA
4	61.8	41.3	NA
5	66.9	23.8	NA
6	66.5	38.8	NA
7	77.3	42.1	NA
8	68.6	46.9	NA
9	79.9	41.5	NA

C	_	m	m	on	te:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kept Loader, Laboratory Supervisor

3-1Z-14 Date:

#### <u>Dry Creek WRF Laboratory</u> <u>For: TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

**Quality Assurance/Quality Control OA/QC** 

Date:/	/_	21	- 14		] [] AM [] PM
Date				Time. / © / " =	I II AFTATE I TETAT

## Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: /- 2/ ~/ 1/ Time: /01/30 [] AM/] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sa	mples ana	llysis				
[] Name of analyst						
[] All analyses are rep	orted on	dry weig	ht basis			
[] Dry Creek WRF La 8911 Campstool Re Cheyenne, WY 820 Ph: 307-635-3163 Fax: 307-635-6833	d. 007					
[] Analytical quality a	ssurance/	quality (	control (Q	A/QC) ava	ailable	
[] Analytical results a	vailable					
[] Chain of custody re	ecord					
	3					

Date: 1-21-111 Time: 10730 [] AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

	Date and time of sample
[]	Name of analyst
[]	Analytical methods used
[]	Analyses and calculation results properly documented or verified
[]	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[]	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available
[]	Chain of custody record

Zone: Rows: 1 - 9 Date: 1-21-11 Time: 10130 [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: | Rows: | - | Date: | Time: | | Time: | | PM

Project Name: 151650 /10/5
Location: Dry Creek WAF
Address: 8911 Camp 5 Tool Rd.
City: Chry 41712   State: [ ] Zip Code: Packy.
Samples Collected by: Ch 1 Backel Date/Time: 1-21-14/10130.4
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek UNF.
Name of Laboratory: Nry (reek UNF
City: Channe   State: 11 1/   Zip Code: P207.
Name of Analyst:
This Certification is signed by:
Date: 4-10-14 ] Time: 3   AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Page	ğ	of	1
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Client's Name:	· · · · · · · · · · · · · · · · · · ·	Cont	act Name:			4				/		Sampler's	Name (if o	ther than Contact):_	
Report Required F	For:			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay	AN	ALY	'SIS	RE	QUE	ST	ED	How <u>Preserved</u> HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	Sample	Other <u>Information</u> (pH, Field Analysis, etc.)	Analysis <u>Completed</u> Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	Other MATRIX	U	15						None			
120heA	K	1-11	1 11	11	,	:						WH			
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7	17	1			1	1						7	- Contraction of the Contraction		
Custody Record <u>MUST</u> be	Relinquished by:		Mik	Date/Time:				Rece	eived	by:	, , , , , , , , , , , , , , , , , , ,				Date/Time:
Signed	Sample Disposal:	Return to		Dormit			spos		, gapen	ß	7**			Log#	775

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Page	1	of	4	_

Client's Name:	Contac	t Name:	i g		3 - 2-2"	<i>∳</i> 2.4	gr Gr	8	Sampler's	Name (if o	ther than Contact):_	
Report Required For:	A Augus		Number of Containers ample Type W S V B O Air Water Coils/Solids Vegetation Bioassay	ANAL	YSIS	REC	UES	1 1	How Preserved  HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed  Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Date	Collection	Other	TG 1/5	2				TYONG			
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Custody Record MUST be		D	ate/Time: /		·	Recei	ved by		, v			Date/Time:
Signed Sample Disposal:		ient:		Lab	lispos	al:	,		·		Log#	775

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Conv

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

Attachment: #6.

Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction Part I.C.3, reduction alternatives in the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 01/21/14 Date Received: 01/21/14

Sample Location: Zone C

Sample Matrix: Compost

Sampled By: CB

Date Reported: 3/12/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 01/23/14

NA

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/ Row# **Total Solids % Volatile Solids% Dry Gram Sludge** 77.5 36.6 NA 1 2 69.4 32.2 NA 75.7 32.5 3 NA 4 66.7 37.5 NA 5 68.7 44.0 NA 68.3 44.5 NA 6

**Comments:** 

7

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

42.3

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

60.1

3.12.14

#### <u>Pry Creek WRF Laboratory</u> <u>For: TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

**Quality Assurance/Quality Control OA/QC** 

Date: 1-21-14 | Time: 10630 | [] AM |] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 1-21-111   Time: 10:30   [AM ] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 1-21-14 Time: 10130 [] AM [] PM

# Analytical Records From: (Chevenne BOPU) Dry Creek WRF To: (Chevenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record
Zone:] Rows:] Date:] Time:] [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: C | Rows: | - 7 | Date: | - 2 | - 14 | Time: | 10/30 | [] AM | PM

Project Name: 16 050 1165
Location: DVV CCERK CLARE
Address: 891/ Canp 5700/RJ
City: Cheyenny   State: [ ] Zip Code: 8 2007.
Samples Collected by: Chut Bankul .[Date/Time: 1-21-14/0/36 Am
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry CVEEK WRF.
Address: 81/1 (qm pstoc) Rd.
City: Cheyenny   State: $(1)^{\prime}$   Zip Code: $(2)^{\prime}$ .
Name of Analyst: Kent Land.
This Certification is signed by:
Date: 4-10-14   Time: 8   AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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		in at hill	Cont	act Name:_		-	1 . 9	1	W	_	Sampler's	Name (if o	ther than Contact):_	
Re	port Required F	For: 1/2			Number of Containers	ANAL	YSIS F	REQUI	EST	1 1	How Preserved	Sample <u>Type</u>	Other Information	Analysis Completed
en gh		Resur 1-	- 7		Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay						HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
	SAMPLE IDEN (Name, Local		Collection Date	Collection Time	Other MATRIX	100					140110			
1	2011×C	NVERZI	1-14	GA III?	100						WA	6-		
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	Custody Record MUST be	Relinquished by:			Date/Time:		1.	eceive	1	2	, AA			Date/Time:
	Signed	Sample Disposal:	Return to	client:		Labo	lisposal						Log#	ery reg reg
		ID#			Permi	# 1/4	15	proper to	1	49	0007			

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

## Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

## Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

## Attachment: #6. Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives Part I.C.3, the management in practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163

Fax: 307-635-6833

Date Sampled: 01/21/14

Date Received: 01/21/14

Sample Location: Zone D Sample Matrix: Compost

Sampled By: CB

Date Reported: 3/12/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 01/23/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	77.3	39.0	NA
2	60.3	44.3	NA
3	69.6	42.2	NA
4	66.3	44.4	NA ·
5	64.1	38.2	NA

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

Page 1 of 1

## **Dry Creek WRF Laboratory For: TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 1-21-14 | Time: 10130 | [] AM | PM

# Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, weather permitting.
[] Chain of custody recorded
Date: 10'(30) [] AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 1-21-11 Time: 10:30 [] AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

lids s
r

Zone: [ ] Rows: 1 - 5 Date: 1-2/-11/1 Time: 10/30 [] AM/] PM

# Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone:  $\sqrt{\phantom{a}}$  | Rows:  $\sqrt{\phantom{a}}$  -  $\sqrt{\phantom{a}}$  | Date:  $\sqrt{\phantom{a}}$  | Time:  $\sqrt{\phantom{a}}$  |  $\sqrt{\phantom{a}}$  | PM

Project Name: 18 1050 11d5
Location: Dry Creek WR/=
Address: 79 // Campstoc/Rd.
City: Cheyenne State: WY   Zip Code: 82 (X) 7.
Samples Collected by: Chet Beukel: Date/Time: 1 -21-14//013:15m
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creeklikk.
Name of Laboratory: Dry Creeklark.  Address: 79 // Canpstal RV.
City: Che Venny State VV   Zip Code: 8200 7
Name of Analyst: Kent Loed.
This Certification is signed by:
Date: 4-10-14 Time: 8 MAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	/	of	
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Client's Name: 1 225 K	N/ Con	tact Name:_			1 1	Total	Ż		Name (if o	other than Contact):_	
Report Required For:				ANALY	SIS R	EQUE	STEI	HNO3 H <sub>2</sub> SO <sub>4</sub> 4°C	Sample Type Grab or Composite	Other <u>Information</u> (pH, Field Analysis, etc.)	Analysis <u>Completed</u> Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Date	Collection Time	Vegetation Bioassay Other MATRIX	1816				HCL None			
1 -2 M > D Run	1 1-21		1 plusie					WH	G		
2	2								ger and Wallet		
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	L.,							1			
	6, 1	1									
6				4 4							=
7								T <sub>N</sub>			
Custody Record MUST be	MOTOT Ja		1 '	-14		eceived	1 1				Date/Time:
Signed Sample Dispos		o client:	Permit	_ Lab dis					13 2	Log#	The state of the s

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

## Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

## Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction in Part I.C.3, reduction alternatives the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility false imprisonment.

## Attachment: #6. Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Attachment: #7.

Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 01/21/14 Date Received: 01/21/14

Sample Location: Zone E Sample Matrix: Compost

Sampled By: CB

Date Reported: 3/12/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 01/23/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19<sup>th</sup> Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	77.6	39.4	NA
2	73.1	33.9	NA
3	68.1	35.0	NA
4	65.1	38.9	= NA
5	65.1	36.7	NA

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = Not Analyzed

Kent Loader, Laboratory Supervisor

3.12.14

#### <u>Dry Creek WRF Laboratory</u> <u>For: TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

#### (Chevenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

Quality Assurance/Quality Control OA/QC

Date: 1-21-14 | Time: 1017-0 | [AM [] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: /- \_   Time: \( \frac{10.730}{30} \) [] \( \text{AM} \) [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: E Rows: 1 - 5 Date: 1-21-14 Time: 10:30 [] AM [] PM

# Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: F | Rows: | -5 | Date: /-2/-11 | Time: / C | 30 | [] AM [] PM

Project Name: 12/050/12/5
Location: Dry Creek WRF
Address: 7911 CampstoolRd.
City: Cheyenne State: WY Zip Code: 77-CV 7.
Samples Collected by: Chat Bauhl [Date/Time: 1-21-14/10/30/717]
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: De Creek WR/=
Address: 89// Campstoc/ Ad
City: Cheyenge   State: U/   Zip Code: 8 200.
Name of Analyst: 100 hoc .
This Certification is signed by:
Date: 4-10-14   Time: 0800   AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	of	1
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Client's Name:	/	Conta	act Name:						s	ampler's	Name (if o	ther than Contact):_	
Report Required F	For:		1- :-	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation	ANAL	YSIS	REQ	UEST	ED	How <u>Preserved</u> HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C	Sample	Other Information (pH, Field Analysis, etc.)	Analysis <u>Completed</u> Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	Bioassay Other MATRIX	The same of the sa					HCL None			
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4		**	Princip of their applicate	error	Angel (shark or) on					of baronthean	and the parties of th		
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7													
Custody Record <u>MUST</u> be	Relinquished by:		JOHU	Date/Time:	o h	The state of the s	Receiv	red by:	Ī,				Date/Time:
Signed	Sample Disposal:	Return to	client:	Downia		dispos	sal:					Log#	770

Copies to:

White - Book in Laboratory

Yellow - I aboratory Hard Conv

Pink - Client

## Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

## Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

## Attachment: #6. Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives Part I.C.3, in the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

ATTACHMENT: 11

DRY CREEK WRF

DRY SLUDGE ROWS

TEMPERATURE

2014

2014 Zone Tempe Date:1/27/2014	0 y 100 0				1
Time:1:00 pm			Time:1:20 pm		1
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	40	4.4	1	36	2.2
2	38	3.3	2	34	1.1
3	36	2.2	3	34	1.1
4	34	1.1	4	34	1.1
5	36	2.2	5	38	3.3
6	34	1.1	6	40	4.4
7	34	1.1	7	36	2.2
8	36	2.2	-		
9	34	1.1			
2014 Zone Tempe	erature				
Date:1/27/2014	Sidulo				
Time:1:45 pm			Time:2:00 pm		
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	34	1.1	1	38	3.3
2	34	1.1	2	34	1.1
3	36	2.2	3	36	2.2
4	38	3.3	4	34	1.1
5	36	2.2	5	34	1.1
3	30	2.2	3	34	1.1
2014 Zone Tempe	arature				
Date:2/14/2014	erature				<u> </u>
Time:1:00 pm			Time:1:20 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Coloius
					Celsius
1	42	5.6	1	46	7.8
2	44	6.7	2	44	6.7
3	40	4.4	3	44	6.7
4	38	3.3	4	42	5.6
5	42	5.6	5	40	4.4
6	46	7.8	6	44	6.7
7	44	6.7	7	42	5.6
8	40	4.4			
9	46	7.8			
00117 -					
2014 Zone Tempe	erature				
Date:2/14/2014			Time = 0:00		
Time:1:45 pm	Fab14	0-1-1	Time:2:00 pm	Fabruari 14	Orlei
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	40	4.4	1	44	6.7
2	44	6.7	2	46	7.8
3	46	7.8	3	42	5.6
4	42	5.6	4	44	6.7
5	44	6.7	5	46	7.8
	l l		1		1

Date:3/20/2014			1		
Time:1:00 pm			Time:1:20 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	50	10		48	8.9
2	48	8.9		50	10
3	46	7.8	<del>                                     </del>	46	7.8
4	50	10		44	6.7
5	44	6.7		46	7.8
6	52	11.1	6	48	8.9
7	46	7.8	<del></del>	44	6.7
8	44	6.7	•		0.7
9	48	8.9			
2014 Zone Tempe	erature				
Date:3/20/2014	J. G.				
Time:1:40 pm			Time:2:00 pm		
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	46	7.8	2011e L ROWS	46	7.8
2	48	8.9	2	48	8.9
3	44	6.7	3	44	6.7
4	48	8.9	4	46	7.8
5	46	7.8	5	50	10
<u> </u>	70;	7.0	5	30	10
2014 Zone Tempe	arature				
Date:4/29/2014	si ature				
Time:1:00 pm			Time:1:15 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
Zolle A Rows	52	11.1	Zone C Rows		12.2
2	54	12.2	2	54	
3	50	12.2	3	52	11.1
4	48	8.9	3	54	12.2
5	52	11.1		54	12.2
6			5	56	13.3
	54	12.2	6	52	11.1
7	50	10	7	52	11.1
8	54	12.2			
9	56	13.3			
2044 Zana Tanan					
2014 Zone Tempe Date:4/29/2014	erature				
			Ti4.48		
Time:1:40 pm	F-1	0-1-1	Time:1:45 pm	= 1 1 1/	0.1.
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	54	12.2	1	54	12.2
2	54	12.2		52	11.1
3	56	13.3	3	52	11.1
4	52	11.1			
5	54	12.2			
					Page 2

2014 Zone Tempe Date:5/30/2014	cialuic				
Time:8:30 am			T:0.40		
	Fabruaria ia	O a la ince	Time:9:10 am	pm 1 1 1	
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	66	18.9	1	62	16.
2	64	17.8	2	66	18.9
3	66	18.9	3	66	18.9
4	66	18.9	4	68	18.9
5	64	17.8	5	66	18.9
6	64	17.8	6	66	18.9
7	66	18.9	7	60	15.0
8	66	18.9			
9	66	18.9			
2014 Zone Tempe	erature				
Date:5/30/2014					
Time:9:15 am			Time:9:30 am		
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	62	16.7	1	64	17.8
2	66	18.9	2	66	18.9
3	66	18.9			
4	68	20			
5	66	18.9			
2014 Zone Tempe	erature				
Date:6/24/2014	Sidiare				
Time:1:00 pm			Time:1:10 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
Zolle A Rows	70	21.1			
2	70	22.2	1	68	20
	70	21.1	2	72	22.2
3	70	23.3	3	70	21.1
			4	74	23.3
5	72	22.2	5	70	21.1
6	70	21.1	6	74	23.3
7	70	21.1	7	72	22.2
8 9	70 72	21.1 22.2			
	12	22.2			
2014 Zone Tempe	erature				
Date:6/24/2014					
Time:1:20 pm			Time:1:30 am		
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	74	23.3	1	72	22.2
2	72	22.2	2	70	21.1
3	70	21.1			
4	70	21.1			
5	72	22.2			
				=	Dage 2
1					Page 3

Date:7/24/2014	!				
Time:1:00 pm			Time:1:20 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	86	30	1	90	32.2
2	82	27.8	2	92	33.3
3	84	28.9	3	86	30
4	90	32.2	4	88	31.1
5	92	33.3	5	90	32.2
6	88	31.1	6	88	31.1
7	84	28.9	7	90	32.2
8	92	33.3			
9	86	30			
2014 Zone Tempe	erature				
Date:7/24/2014					
Time:1:45 pm			Time:2:00 pm		
Zone D Rows	Fahrenheit	Celsius	Zone E Rows	Fahrenheit	Celsius
1	88	31.1	1	86	30
2	90	32.2	2	90	32.2
3	86	30			72.2
4	84	28.9			
5	90	32.2			
		72.2			
2014 Zone Tempe	erature				
Date:8/26/2014	Jidiare				
Fime:2:40 pm			Time:2:50 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	76	24.4	2016 0 Rows	82	27.8
2	74	23.3	2	78	25.6
3	72	23.3	3		
4	72	22.2		76	24.4
5	74	23.3	4	76	24.4
6			5	70	21.1
7	72 82	22.2	6	76	24.4
8		27.8	7	74	23.3
	80	26.7			
9	84	28.9			
0014 Zona Tampa					
2014 Zone Tempe Date:8/26/2014	erature				
			Time 0.2.00		
Fime:3:00 pm	Fahrenheit	Coloino	Time:3:00 pm	E-1114	0.1.1.
Zone D Rows		Celsius	Zone E Row	Fahrenheit	Celsius
1	74	23.3	1	72	22.2
2	76	24.4			
3	78	25.6			
4	78	25.6			
5	74	23.3			
1					
					Page 4

2014 Zone Tempe Date:9/22/2014	siatuic				
Time:4:00 pm			Time:4:10 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
Zone A Rows	70	21.1	Zone C Rows	70	21.
2	68	20	2	70	21.
3	70	21.1	3	68	21.
4	68	20	4	68	20
5	66	18.9	5		21.1
6	68	20	6	70	21.
7	70	21.1	7	72	
8	70	21.1		68	20
9	70	22.2			
3	12	22.2			
2014 Zone Tempe	raturo				
Date:9/22/2014	erature				
			Times4.45		
Time:4:15 pm Zone D Rows	Enhanteit	Colsius	Time:4:15 pm	Fabruard - W	Calain
	Fahrenheit	Celsius	Zone E Row	Fahrenheit	Celsius
1	72	22.2	1	74	23.3
2	72	22.2			
3	72	22.2			
4	72	22.2		****	
5	74	23.3			
00447					
2014 Zone Tempe	erature				
Date:10/20/2014					
Time:2:00 pm			Time:2:15 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	50	10	1	54	12.2
2	52	11.1	2	54	12.2
3	48	8.9	3	52	11.1
4	50	10	4	50	10
5	46	7.8	5	52	11.1
6	52	11.1	6	50	10
7	52	11.1	7	54	12.2
8	56	13.3			
9	54	12.2			
2014 Zone Tempe	erature				
Date:10/20/2014					
Time:2:25 pm					
Zone D Rows	Fahrenheit	Celsius			
1	56	13.3			
2	54	12.2			
3	50	10			
4	52	11.1			
5	54	12.2			
		٠			
					Page 5

Date:11/24/2014					
Time:1:00 pm			Time:1:15 pm		
Zone A Rows	Fahrenheit	Celsius	Zone C Rows	Fahrenheit	Celsius
1	20	-6.7	1	24	-4.4
2	22	-5.6	2	26	-3.3
3	24	-4.4	3	30	-1.1
4	30	-1.1	4	30	-1.1
5	28	-2.2	5	24	-4.4
6	32	0	6	26	-3.3
7	28	-2.2	7	26	-3.3
8	26	-3.3			
9	26	-3.3			
2014 Zone Tempe	erature				
Date:11/24/2014					
Time:1:30 pm					
Zone D Rows	Fahrenheit	Celsius			
1	30	-1.1			
2	30	-1.1			
3	26	-3.3			
4	28	-3.3			
2014 Zono Tompo	roturo				
2014 Zone Tempe Date:12/31/2014	erature				
Time:10:30 am			Time:10:45 am		
Zone A Rows	Fahrenheit	Celsius		Fabrar bait	Calaina
			Zone C Rows	Fahrenheit	Celsius
1	20	-6.7	1	24	-4.4
2	22	-5.6	2	26	-3.3
3	24	-4.4	3	30	-1.1
4	30	-1.1	4	30	-1.1
5	28	-2.2	5	24	-4.4
6	32	0	6	26	-3.3
	28	-2.2	7	26	-3.3
8	26 26	-3.3			
9	26	-3.3			
2014 Zone Tempe	erature				
Date:12/31/2014					
Time:11:30 am					
Zone D Rows	Fahrenheit	Celsius			
1	30	-1.1			
2	20	-6.7			
3	26	-3.3			
4	28	-2.2			
1					
					Page 6

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

**ATTACHMENT: 13** DRY CREEK WRF **TOTAL SOLIDS % VOLATILE SOLIDS %** FECAL MPN/gm (6 TIMES A YEAR)

2014



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 12/09/14 Date Received: 12/09/14 Sample Location: Zone A

Sample Location: Zone A Sample Matrix: Compost

Sampled By: CB

Date Reported: 12/16/14

Date Fecal Analyzed: 12/09/14 Date Solids Analyzed: 12/10/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19<sup>th</sup> Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	75.9	25.1	<428
2	75.3	23.2	<431
3	68.0	26.0	477
4	56.4	36.7	<576
5	66.4	28.5	<489
6	70.9	34.7	<459
7	69.8	36.1	<466
8	71.5	37.9	<454
9	70.1	40.6	<463

#### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzod

Kent Loader, Laboratory Supervisor

12-16-14

Date

#### <u>Pry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

**Quality Assurance/Quality Control OA/QC** 

Date: 12-9-14 | Time: 10:30 | [AM] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: $\sqrt{3}$ Time: $\sqrt{0}$ $\sqrt{3}$ $\sqrt{3}$ $\sqrt{3}$ $\sqrt{3}$ $\sqrt{3}$ $\sqrt{3}$ $\sqrt{3}$

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- [] Date and time of samples analysis
- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163
- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Fax: 307-635-6833

Date:  $\sqrt{\frac{1}{3}} - \frac{9}{9} - \frac{11}{9}$  Time:  $\sqrt{\frac{10}{3}} = \frac{30}{9}$  [[AM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

	Date and time of sample
[]	Name of analyst
[]	Analytical methods used
	Analyses and calculation results properly documented or verified
[]	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[]	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available
[]	Chain of custody record

Zone: 1 - 9 | Date: 12 - 9 - 11/1 Time: 0 3 | 1 AM | PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone:  $\mathcal{L}$  Rows:  $1 - \mathcal{L}$  Date:  $1 - \mathcal{L}$  Time: 10.35 [] AM/[] PM

Project Name: B10501d5
Location: Dry Creek WRF.
Address: 8911 Camps Tool Rd.
City: Chevenne   State: Wy   Zip Code: 82007.
City: Cheyenne   State: My   Zip Code: 82007.  Samples Collected by: Chet Benkell. [Date/Time: 12-17-14/10].
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 8911 Cam p 5 700/ Rd.
City: Cheyenne   State: Wy   Zip Code: 82007.
Name of Analyst:
This Certification is signed by:
Date: 1217.14 Time: TAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

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Client's Name:	1170051	<u></u> √ Cont	act Name:_	Ast		1	7	ryll. Z	1	,	Sampler's	Name (if o	ther than Contact):_	
Report Required	For: Parties I	15		Number of Containers	ANA	ALYS	IS F	REQUI	EST		How Preserved	Sample Type	Other Information	Analysis Completed
	2 19		1-7	Sample Type A W S V B O <u>A</u> ir <u>W</u> ater <u>S</u> oils/ <u>S</u> olids <u>V</u> egetation <u>B</u> ioassay		<b>N</b> 1000					HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Local		Collection Date	Collection Time	<u>Q</u> ther MATRIX	L.	1-1-	7				11 / IL	T.		
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Signed	Sample Disposal:	Return to	o client:	Damei		b disp		•		y <sup>y*ll</sup> .	, , , , , , , , , , , , , , , , , , ,		Log#	093

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

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Page	1	of	

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Client's Name:	16,-251	UK - Cont	tact Name:_	1/11	1.	)			4	1	Sampler's	Name (if o	ther than Contact):_	
Report Required I	For: 13,000 1	//	- G	Number of Containers Sample Type	1		SIS	RE	QUES			Sample <u>Type</u>	Other Information	Analysis Completed
	H Rew		/	A W S V B O Air <u>Water</u> Soils/Solids Vegetation Bioassay	64/111	, , , , , , , , , , , , , , , , , , ,	V				HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	Other MATRIX	O IL	7	7			=	None			
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Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

#### Attachment: #4.

#### Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives I.C.3, in Part the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 12/09/14

Date Received: 12/09/14

Sample Location: Zone C

Sample Matrix: Compost

Sampled By: CB

Date Reported: 12/16/14

Date Fecal Analyzed: 12/09/14 Date Solids Analyzed: 12/10/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	71.0	29.3	<458
2	61.7	47.5	<527
3	65.4	34.6	<497
4	75.4	45.9	<431
5	60.0	41.3	<541
6	64.1	44.9	<509
7	71.6	45.2	<454

#### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Ahalyzed

Kept Loader, Laboratory Supervisor

12-16-14 Date:

### **Dry Creek WRF Laboratory For: Fecal, TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-14 Time: 10:35 [[AM]] PM

### Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 12-9-14   Time: 10435   [] AM/j PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

	Date and time of samples analysis
[]	Name of analyst
[]	All analyses are reported on dry weight basis
[]	Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available

[] Chain of custody record

Date: 12 - 9 - 11/ Time: 10 : 35 [] [AM] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: C | Rows: 1 - 7 | Date: 12-9-14 | Time: 10:35 | [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: [] Rows: 1 - 7 Date: 11-9-14 Time: 0:35 [] AM [] PM

Project Name: 1050 1, 25
Location: Dry Creek WRF
Address: 8911 Camps Toul 8d.
City: Cheyenne State: Wy   Zip Code: 8 2007.
Samples Collected by: Chelt Barkell [Date/Time: 12 -9-14/10/35 Am
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 8911 Camp STWRd.
City: Che yenne   State: Wy   Zip Code: 8207.
Name of Analyst:
This Certification is signed by:
Date: 12-17-14 Time: 1 AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Page		_ of <u>-/</u>	_

6.	. 1	i a		
Client's Name:	Contact Name:_	MUE	Sampler's Name (if	other than Contact):
Report Required For:		Number of Containers Sample Type		Other Analysis Information Completed
		A W S V B O Air Water Soils/Solids Vegetation Bioassay	HNO <sub>3</sub> Grab H <sub>2</sub> SO <sub>4</sub> or 4°C Composite HCL None	(pH, Field Analysis, etc.)  Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Collection Date Time	Other MATRIX	NH C	
1201:06 ROW 1	12-1-10 PA			
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3 3				
4		The second secon		
5				
6				
7	1			
Custody Record MUST be	hat andi	Date/Time:	ceived by:	Date/Time:
Signed Sample Disposal:	Return to client:	Lab disposal:	7 . 77 . W.V	Log# 3 3 3

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #5.

#### Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 12/09/14

Date Received: 12/09/14

Sample Location: Zone D

Sample Matrix: Compost

Sampled By: CB

Date Reported: 12/16/14

Date Fecal Analyzed: 12/09/14 Date Solids Analyzed: 12/10/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	73.6	44.4	490
2	64.9	40.1	<501
3	71.7	38.9	<453
4	70.5	40.7	<461

Comments:

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

12-16-14 Date:

### **Dry Creek WRF Laboratory For: Fecal, TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 12-9-11 | Time: 10:35 | [AM [] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date 1 2 - 9 - 11   Time: 10:35   [] AM   PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- [] Date and time of samples analysis
- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163

Fax: 307-635-6833

- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Date: 12 - 9 - 14 Time: 10:35 [] [M] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone:  $\bigcirc$  Rows:  $\bigcirc$  Date:  $\bigcirc$  Time:  $\bigcirc$   $\bigcirc$  [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone:  $\int$  Rows:  $\int$  -  $\int$  Date:  $\int \int$  - g Time:  $\int \int$  g Time:  $\int \int$  g Time:  $\int \int$  g Time:  $\int$  g Time:

Project Name: 3,050 1, 25
Location: Dry Creek WAF.
Address: 8911 Campstoll Rd.
City: Cheyenne   State: Uy   Zip Code: 82007.
Samples Collected by: Chet Beubl! [Date/Time: 12-9-14/10/35. Am
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek URF.
Address: 8911 Camp 5 roul Rd.
City: Cheyenne   State: (1 ) Zip Code: 32007.
Name of Analyst:
This Certification is signed by:
Date: 19-17-14   Time: [   ] FAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

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Page	f	of	Ţ.

Client's Name:	Cont	act Name:_	1/4	/	ر بر ا	13	<i>(</i>		_ 5	Sampler's	Name (if o	ther than Contact):_	
Report Required For:	16		Number of Containers Sample Type	46	LYS	IS F	EQU	EST	ED	How Preserved	Sample Type	Other <u>Information</u>	Analysis Completed
HOW NOW		H	AWSVBO Air <u>W</u> ater Soils/Solids Vegetation		<b>.</b>					HNO₃ H₂SO₄ <b>4</b> °C HCL	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	<u>B</u> ioassay <u>O</u> ther	323						None	Ö		
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2				R terresphensis deal annua							-		
3													
4 10 10 11	1	10	1	J.		1				1	1		
5													
6													2
7		1											
Custody Record MUST be	WK	Mill	Date/Time: /	) - 1 35	13	Re	ceive	d by:	1/1/	1/4	ne A		Date/Time:
Signed   Sample Disposal:	Return to	client:	Dormit		disp		<i>P</i> .		7	1.18.11.3		Log#	

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction Part I.C.3, reduction alternatives in the practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 10/27/14

Date Received: 10/27/14

Sample Location: Zone A Sample Matrix: Compost

Sampled By: CB

Date Reported: 12/11/14

Date Fecal Analyzed: 10/27/14 Date Solids Analyzed: 10/28/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Total Solids % Volatile Solids %				
1	80.8	21.5	<402			
2	77.4	18.2	<419			
3	73.2	26.3	<444			
4	81.9	34.9	<396			
5	68.2	26.0	<476			
6	83.5	28.0	864			
7	73.0	32.5	<445			
8	76.5	37.0	<424			
9	66.4	45.8	<489			

#### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = Not Analyzed

Ken Loader, Laboratory Supervisor

12-11-14 Date:

#### <u>Pry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

#### (Chevenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

**Quality Assurance/Quality Control OA/QC** 

Date: 10-27- 11 | Time: 11: 10 | [] [AM][] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 10-27-14   Time: 11 (10)   [VAM][] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- [] Date and time of samples analysis
- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163

Fax: 307-635-6833

- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Date: 10-27- | Time: | / (10) [] AM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Date and time of sample
Name of analyst
Analytical methods used
Analyses and calculation results properly documented or verified
All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
Analytical quality assurance/quality control (QA/QC) available
Analytical results available
Chain of custody record

Zone: A Rows: 1 - 9 Date: 10-27-14 Time: // // [] AM/[] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: | Rows: | - 9 | Date: 10-27-14 Time: | / / / / | PM

Project Name: B/050/id5
Location: Dry Creek WRF.
Address: 8911 Campstool Rd.
City: Cheyenne State: Wy Zip Code: 8207.
Samples Collected by: (At Belle M. [Date/Time: 10-27-14/11 10 Am
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: VY CYECK WAF.
Address: 8911 Camp 5 Toolkd.
City: Cheyenne   State: VY   Zip Code: 82-007.
Name of Analyst:
This Certification is signed by:
Date: 12-17-14   Time: 1   AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Client's Name: <u></u>		Contact	Name:				4	1		S	Sampler's I	Name (if o	ther than Contact):_	140
Report Required	d For:	1-7		Number of Containers Sample Type A W S V B O Air <u>W</u> ater Soils/Solids <u>V</u> egetation Bioassay		LYSI	RE	QUE	ESTI	ED	How <u>Preserved</u> HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	Sample	Other Information (pH, Field Analysis, etc.)	Analysis <u>Completed</u> Yes / No (Lab use only)
/ (Name, Lo	ENTIFICATION ocation, etc.)	Collection C Date	ollection Time	Other MATRIX			·				,			
1 / Zon	e A Haul	Ingiliani,	1	11	a a a a a a a a a a a a a a a a a a a	a source description of					The American	9		
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Custody Record <u>MUST</u> be	Relinquished by:			Date/Time:	315		Rec	eived	by:			)		Date/Time:
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# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
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Client's Name: 1/6/6/6	.○ R+Conta	ct Name:	Lit	:	.; ///				Sampler's	Name (if o	ther than Contact):_	****
Report Required For:	1,10	Ta ser	Number of Containers	ANAL	YSIS	RE	QUES		How Preserved	Sample Type	Other Information	Analysis Completed
			Sample Type A W S V B O Air <u>W</u> ater Soils/Solids Vegetation Bioassay		\^				HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Other MATRIX	January Johnson					None			
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Custody Record MUST be	Market	<b>1</b>	Date/Time:	7- 1		Rece	eived b	<b>y:</b>				Date/Time:
Signed Sample Disposal:	Return to		Dormid	Labo				¥ £			Log#	

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction in Part reduction alternatives I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### CHEYENNE BOPU WATER REC LABORATORY

8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 10/27/14

Date Received: 10/27/14

Sample Location: Zone C

Sample Matrix: Compost

Sampled By: CB

Date Reported: 12/11/14

Date Fecal Analyzed: 10/27/14 Date Solids Analyzed: 10/28/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	78.2	20.1	<415
2	76.4	40.3	<423
3	79.1	44.8	<411
4	70.7	39.7	<460
5	69.9	42.9	<465
6	70.0	45.1	<463
7	73.3	44.9	<443

#### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = Not Analyzed

Kent Loader, Laboratory Supervisor

12-11-14 Date:

#### <u>Pry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

Identification Reporting: No. WYSL -22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-27-14 | Time: 1/10 | []AM[] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 10-27-14   Time: 1/ (10 ) [] AM[] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- [] Date and time of samples analysis
- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163

Fax: 307-635-6833

- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Date: 10-27-14- Time: 1/10 []AM/] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: C | Rows: 1 - 7 | Date: 10-27 | Time: 1/1/2 [] (AMI [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: C | Rows: 1 - 7 | Date: 10-27- | Time: 1/ (//) [(AM [] PM

Project Name: Brogert Name: Br
Location: DVY Creek 10RF.
Address: 891/ Camp stock Rd.
City: Cheyenne   State: Wy   Zip Code: 82007
Samples Collected by: Chef Beuld .[Date/Time: 150/10-27-14.///.////////////////////////////////
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: DVY CVERF WRF.
Address: 39/1 Camp StW/ Rd
City: Cheyenne   State: UV   Zip Code: 82007.
Name of Analyst:
This Certification is signed by:
Date: 12.17-14   Time:     TAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Client's Name:	1 1/21 8/21	Contact I	lame:				Sampler's I	Name (if o	ther than Contact):_	
Report Required F	or: 14050	10/2	- 1	nber of ANAL tainers	YSIS R	EQUESTED	How Preserved	Sample Type	Other Information	Analysis Completed
701 0		•	A W S <u>A</u> ir <u>S</u> oils <u>V</u> eg	ole Type S V B O Water s/Solids etation assay			HNO3 H2SO4 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca			lection O	ther TRIX						
120my C	Row I		120 1111	onet live			NA	9		
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Custody Record <u>MUST</u> be	Relinquished by:	Padar	Date/	Time: - ) 7 - /\   / : /U /}	Re	eceived by:				Date/Time:
Signed	Sample Disposal:	Retum to clie	nt:	Lab	disposal:				Log#	3 3 1
	ID#	5/ 2	1930 F	Permit#		( - · /	5 000	7		

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction alternatives reduction in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management the practices and restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### CHEYENNE BOPU WATER REC LABORATORY

8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 10/27/14

Date Received: 10/27/14

Sample Location: Zone D

Sample Matrix: Compost

Sampled By: CB

Date Reported: 12/11/14

Date Fecal Analyzed: 10/27/14 Date Solids Analyzed: 10/28/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	73.7	46.7	<441
2	75.1	44.5	<432
3	74.2	38.5	<438
4	70.8	41.0	<459
5	77.9	45.2	1,412

#### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = Not Analyzed

Kent Loader, Laboratory Supervisor

 $\frac{12-11-14}{\text{Date:}}$ 

### Dry Creek WRF Laboratory For: Fecal, TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

#### (Chevenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 10-27- ) | Time: 11/10 | [] AM/] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, weather permitting.
[] Chain of custody recorded
Date: 10-27-14   Time: 1/10   [] AM/] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record
** *** *** *** *** *** *** *** *** ***

Date: 10-27-14 Time: // 10 ] [] AM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: D | Rows: 1 - 5 | Date: 10-27- | Time: 1 / 10 | [] AM | PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: 1 | Rows: | - 5 | Date: 10-27 | Time: 1/(0) [] AM [] PM

Project Name: B/050/125
Location: Dry Creek WRF.
Address: 8911 Camp57001 Rd.
City: Cheyenne   State: Wy   Zip Code: 82-007.
Samples Collected by: (154/1) [Date/Time: 10-27-14]
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creck WRF.
Address: 8911 Camp 5 Touled.
City: Cheyenne State: VY   Zip Code: 82007.
Name of Analyst:
This Certification is signed by:
Date: 12-17-14   Time: //   JAM [] PM

### **Cheyenne Board of Public Utilities Water Reclamation Laboratory**

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

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4		A	70			
Client's Name:	Contact Name:		5- Will	Sampler's Name (if o	other than Contactive	
Report Required For:	1.10	Number of Containers ANALY	SIS REQUESTED	How Sample Preserved Type	Other Information	Analysis Completed
ZONED ROL	U) 1-5	Sample Type A W S V B O Air <u>W</u> ater Soils/Solids Yegetation Bioassay		HNO <sub>3</sub> Grab H <sub>2</sub> SO <sub>4</sub> or 4°C Composite HCL None	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Collection Time	Other MATRIX	3	None	s	
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5 1 1 1 1	1. 1	1 10				
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Custody Record MUST be	2 Hayur	Date/Time:	Received by:	I LAP		Date/Time:
Signed Sample Disposal:	Return to client:	Lab di	sposal:	/ *	Log#	072

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction I.C.3, the management reduction alternatives in Part practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 08/26/14

Date Received: 08/26/14

Sample Location: Zone A

Sample Matrix: Compost

Sampled By: CB

Date Reported: 9/30/14

Date Fecal Analyzed: 08/26/14 Date Solids Analyzed: 08/28/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Fecal Coliform/ Dry Gram Sludge				
1	76.5	23.9	<424			
2	71.2	28.1	<456			
3	75.6	26.5	<429			
4	62.9	43.1	<517			
5	66.2	26.7	<491			
6	60.4	32.8	<538			
7	62.5	32.3	519			
8	72.9	34.6	<445			
9	65.7	44.6	986			

#### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = Not Analyzed

Kent Loader, Laboratory Supervisor

9-30.14

### **Dry Creek WRF Laboratory For: Fecal, TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

**Quality Assurance/Quality Control OA/QC** 

Date: 8-26-14 | Time: 10:30 | [] AM[] PM

### Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected	
[] Sampling location documented	
[] Sampling types appropriate	
[] Sampling volumes recorded	
[] Name of person sampling	
[] Types of sampling containers	
[] Methods of preservation	
[] Sampling quality assurance/ quality control QA/QC available	
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)	
[] Certification statement signed with each laboratory analytical report:	
1. Pathogen reduction	
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.	
3. Management Practices	
4. Site restrictions	
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .	
[] Chain of custody recorded	
Date: 8-26-14   Time: 10130   []AM, ] I	PΜ

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 8-26-14 Time: 10:30 [] AM[] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: A Rows: A - A Date: A - A Time: A Time: A [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 8 - 26 - 11 Time: 10:30 [] AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

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Client's Name: <u>Û↓</u> /	Creek	Cont	act Name:_	4/1	4)		Jul.	1	_ 5	Sampler's	Name (if o	ther than Contact):_	
Report Required F	For:	15		Number of Containers	ANAL	YSIS	REQU	EST	1 1	How Preserved	Sample <u>Type</u>	Other Information	Analysis Completed
	TONDARO	WPZ	1-7	Sample Type A W S V B O Air <u>W</u> ater Soils/Solids Vegetation Bioassay						HNO3 H2SO4 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	Other MATRIX	12	3				170110			
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Record <u>MUST</u> be			6 V	10	1301	717		<u>M.</u>	he	Web	<u> </u>		106
Signed	Sample Disposal:	Return to			_ Lab d	isposa	al:					Log#	3
	ID# /// //	7 Jan 1988	2411	Permit	·# / !	4 V	P. France	1913 m	Á	DAAD >	-armi		

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	- In	of	· Commence	

Client's Name:	16, 24	UNF Cont	act Name:_	1.11			1	be		Sampler's	Name (if o	ther than Contact):_	
Report Required I	For: 1/2, 1/50	1,16	~2 G	Number of Containers	ANAL	<b>/SIS</b> 	RE	QUES.	TED	How <u>Preserved</u>	Sample <u>Type</u>	Other Information	Analysis Completed
20r	e A Ro	wes	8-7	A W S V B O Air <u>W</u> ater Soils/Solids Vegetation Bioassay	1000 18	>				HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
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Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

Project Name: B 1 050 1, 65
Location: Dry Crepk WRF
Address: 8911 Cam 05 tol Rd.
City: Cheyenny   State: Wy   Zip Code: 8 2007.
City: Cheyenny   State: WY   Zip Code: 8 2007.  Samples Collected by: Chet Balbell .[Date/Time: 8-26-114/10/130]
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 8911 Campstoul Rd.
City: Cheyenne   State: WY   Zip Code: 8200 ].
Name of Analyst:
This Certification is signed by:
Date: 12.17-14 ] Time: // AM [] PM

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices the and restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 08/25/14 Date Received: 08/25/14

Sample Location: Zone C Sample Matrix: Compost

Sampled By: CB

Date Reported: 9/30/14

Date Fecal Analyzed: 08/25/14 Date Solids Analyzed: 08/28/14

Fecal Coliform/

<490

469

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

	Row#	Total Solids %	Volatile Solids%	Dry Gram Sludge
	1	71.8	23.5	<453
	2	65.2	39.8	<498
ſ	3	65.7	36.7	<494
	4	71.3	36.2	<455
Γ	5	73.7	36.2	<441

**Comments:** 

6

All data meets-QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

36.2

35.5

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

66.3

69.1

Page 1 of 1

### **Dry Creek WRF Laboratory For: Fecal, TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Chevenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

Quality Assurance/Quality Control OA/QC

Date:  $\sqrt{3} - \lambda 5 - 14$  | Time:  $\sqrt{100}$  | [] AM [] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 8-25-14 Time: 9/00 ] [] GM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 8-25-14 Time: 9100 [[AM]] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: Rows: 1 - 7 Date: 3 - 25 Time: 9/00 [[AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: 6 | Rows: 1 - 7 | Date: 8-25-14 Time: 9/06/[] AM [] PM

Project Name: 13/050/165
Location: Dry CVEEF WRF.
Address: 891/ Camps tool Rd.
City: Cheyenne   State: WY   Zip Code: 82007.
Samples Collected by: Alt Sall Date/Time: 3-25-14/9/00/
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: DVY CVECK WRF.
Address: 891/ Camp STOU/ RV.
City: Cheyenne   State: (1)   Zip Code: 8200 ].
Name of Analyst:
This Certification is signed by:
Date: 12-17 ( ) Time: [] AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page		of	
_	-		

Client's Name:	Contact Name:_	1121- )		if other than Contact):
Report Required For:	1-7	Containers Sample Type A W S V B O Air <u>W</u> ater Soils/Solids <u>V</u> egetation Rioassay	HNO3 Grate H2SO4 OF Compo HCL None	(pH, Field Analysis, etc.)  Information  Completed  Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)  Collection Date Time		Other MATRIX		
12 mrl Rowl	X-10 8 12 11	12 16 ha	MINIG	
2				
3 / 3				
4				
5				
6 / / /				
7 1 1 1 7	1/ 1/	1 11	NAA	- V
Custody Record MUST be		Date/Time: 8-25	Received by:	Date/Time:
Signed Sample Disposal:	Return to client:	Lab disp	osal:	Log# 835

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction in Part reduction alternatives I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including possibility the imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 08/25/14 Date Received: 08/25/14

Date Received: 08/25/14 Sample Location: Zone D

Sample Matrix: Compost

Sampled By: CB

Date Reported: 9/30/14

Date Fecal Analyzed: 08/25/14 Date Solids Analyzed: 08/28/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19<sup>th</sup> Ed 2540B

EPA Method/Volatile Solids: SM 19<sup>th</sup> Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	73.6	34.6	<442
2	63.6	35.8	<511
3	61.6	37.1	<527
4	59.0	37.2	<551
5	65.6	39.1	<495

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

Date:

Page 1 of 1

### Dry Creek WRF Laboratory For: Fecal, TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-25-11 | Time: 9/20 | [](AM [] PM

### Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, weather permitting.
[] Chain of custody recorded
Date: 8-25-14   Time: 9/20   [[AM [] PM

## Analytical Records From: (Chevenne BOPU) Dry Creek WRF To: (Chevenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 3-25-11/ Time: 9:20 [[AM/] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: P | Rows: [-5] Date: 3-25 | Time: 9/26 | AM | PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: 1 - 5 Date: 7-25-//Time: 9/20 [] [M] PM

Project Name: By 050/165
Location: Wy CYPK WKF.
Address: 8/// Camps/collect.
City: Chryenne   State: Wy   Zip Code: 8207.
Samples Collected by: Chilf BaybW. [Date/Time: 8-25-14/9/30.4m]
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 89/1 Cam p5 T00/Rd.
City: Cheyenne State: MX Zip Code: 82007.
Name of Analyst:
This Certification is signed by:
Date: 12-17-14   Time:

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Page	1	of	ſ

Client's Name:	Contact Name:	WIF			Sampler's	Name (if o	ther than Contact):_	
Report Required For:		Number of Containers Sample Type	3	SIS REQUESTE	D How Preserved	Sample Type	Other <u>Information</u>	Analysis Completed
Zare)) Ka	( )) Kaw 1-5				HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Collection Date Time	<u>B</u> ioassay <u>O</u> ther <u>MATRIX</u>	trade de la constitución de la c	and a large	None			-
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6					V	1		
7	1 1							
Custody Record MUST be	- 材 ドラン・ルジー	Date/Time:	125	Received by:				Date/Time:
Signed Sample Disposal:	Return to client:		_ Lab dis		7. 7.17		Log#	030

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

## Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

## Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in \* VS out))) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction in Part reduction alternatives I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

## DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 08/26/14 Date Received: 08/26/14

Sample Location: Zone E Sample Matrix: Compost

Sampled By: CB

Date Reported: 9/30/14

Date Fecal Analyzed: 08/26/14 Date Solids Analyzed: 08/28/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/ Row# **Total Solids % Volatile Solids%** Dry Gram Sludge 69.8 36.9 <446

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzod

Kent Loader, Laboratory Supervisor

).30.14

Page 1 of 1

## **Dry Creek WRF Laboratory For: Fecal, TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 3-26-14 | Time: 10:30 | [] AM[] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, weather permitting.
[] Chain of custody recorded
Date: $7-26-14$   Time: 11) 30   [] AM ] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- [] Date and time of samples analysis
- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163

Fax: 307-635-6833

- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Date: 8-26-14 Time: 1130 [] AM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] I	Date and time of sample
	Name of analyst
[] A	Analytical methods used
[] <i>A</i>	Analyses and calculation results properly documented or verified
0	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] <i>A</i>	Analytical quality assurance/quality control (QA/QC) available
[] A	Analytical results available
[] (	Chain of custody record

Zone: E | Rows: | - | Date: 8-26-14 Time: | | AM | PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: F] Rows: 1 - Date: 8-26-11/1 Time: 0:30 [] AM [] PM

Project Name: Biosolids.
Location: Dry Creek WRF
Address: 8911 Campstoul Rd.
City: Cheypnne State: Wy   Zip Code: 32007.
Samples Collected by: Chit Baubli Date/Time: 8-26-14/10130#
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 89// Campstool Rd.
City: Cheyenne   State: Wy   Zip Code: \$2007.
Name of Analyst:
This Certification is signed by:
Date: 12.17-14 Time: // JAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Client's Name:	y auch	WKEont	act Name:_	I was f	1	] 41);	1/1	1.4	<u>, /</u>		s	ampler's l	Name (if o	ther than Contact):_	
Report Required I	For: 5,060 /11	16	t	Number of Containers		ALY	SIS	RE	QUE	STE	D	How Preserved	Sample <u>Type</u>	Other <u>Information</u>	Analysis Completed
	ZONE E ROW!			Sample Type A W S V B O Air <u>W</u> ater Soils/Solids Vegetation Bioassay		000						HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	<u>O</u> ther MATRIX		-	1								
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Signed	Sample Disposal:	Return to	client:		<u>. L</u> á	ab di:	spos	al:						Log#	9 1 0
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Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

**Pink - Client** 

### Attachment: #4.

### Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management I.D (if necessary) (including practices in part practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163

Fax: 307-635-6833

Date Sampled: 06/09/14

Date Received: 06/09/14

Sample Location: Zone A

Sample Matrix: Compost

Sampled By: CB

Date Reported: 6/24/14

Date Fecal Analyzed: NA

Date Solids Analyzed: 06/10/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/

Row #	<b>Total Solids %</b>	Volatile Solids%	Dry Gram Sludge
1	69.1	30.4	<470
2	66.4	24.0	488
3	64.9	29.0	<501
4	62.0	41.3	2151
5	71.1	27.6	<456
6	60.4	37.5	2209
7	77.9	33.4	417
8	57.7	41.2	4031
9	65.9	50.00	984

### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

6.24.14

### <u>Pry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Chevenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

**Quality Assurance/Quality Control OA/QC** 

Date: 6-9-14 | Time: 91/5 | [] AM ] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 6-9-14 Time: 9:15 []AM] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Date and time of samples analysis	
[] Name of analyst	
All analyses are reported on dry weight basis	
Ory Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833	
[] Analytical quality assurance/quality control (QA/QC) available	
] Analytical results available	
[] Chain of custody record	

Date: 6-9-14 Time: 9:15 [] AM] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: A Rows: [-9] Date: [-9]// Time: [-9]//S [] AM/] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: A Rows: 1 - 9 | Date: 6-9-14 | Time: 9:15 | [] AM [] PM

Project Name: 15/050/165
Location: Dry Creek WRP.
Address: 8911 Camps Fool Rd.
City: Chexenne   State: [ J 1   Zip Code: 82007.
Samples Collected by: Chit Barbell [Date/Time: 6-9-14/9:15-14m]
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dv y Cleek WRF.
Address: 891/ Camp 5 Tool Rd.
City: Cheyenny   State: WY   Zip Code: 82007.
Name of Analyst: Kent Lander.
This Certification is signed by:
Date: 8/5/14 ] Time: 10:30 ] [AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Page		of	- maken mar
_	,		

Client's Name:	Contact Name:		Sampler's No.	me (if other than Contact):
Report Required For:		Number of Containers ANALYSIS	REQUESTED How S	Sample Other Analysis Type Information Completed
The Mark I	- 7	Sample Type A W S V B O Air <u>W</u> ater Soils/Solids Vegetation Bioassay	H <sub>2</sub> SO <sub>4</sub>	Grab or etc.) Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Collection Date Time	Other MATRIX	None	
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7		1 11		
	A July W	Date/Time:	Received by:	Date/Time:
Signed Sample Disposal:		Lab dispo	sal:	Log# 8 . 7

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

		1
Page	1.	of

Client's Name:			act Name:_	1 10	/	; ; ;		1	i din		Sampler's	Name (if o	ther than Contact):_	
Report Required	"			Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay	1 30 mg 2 mg	ALY	SIS	RE	QUE	STED	How Preserved HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	Sample	Other Information (pH, Field Analysis, etc.)	Analysis <u>Completed</u> Yes / No (Lab use only)
SAMPLE IDEN (Name, Loc		Collection Date	Collection Time	Other MATRIX	1	1	Market St.				None			
1 2 11 12 14	Hall of	6-1-14	15.05	13/6							NH	G		
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Custody Record <u>MUST</u> be	Relinquished by:	It I A	JUN	Date/Time: /					eived	by: (	Management (			Date/Time:
Signed	Sample Disposal:	Return to				ıb dis					1		Log#	613

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

#### Attachment: #4.

#### Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Chevenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 06/09/14 Date Received: 06/09/14

Sample Location: Zone C Sample Matrix: Compost

Sampled By: CB

Date Reported: 6/24/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 06/10/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18<sup>th</sup> Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	71.1	32.3	3494
2	68.8	33.0	<472
3	65.7	36.4	2822
4	62.2	38.0	<523
5	59.3	47.3	3526
6	58.5	43.4	<555
7	67.7	46.8	<480

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not-Analyzed

Kent Loader, Laboratory Supervisor

6.24.14

Page 1 of 1

### <u>Pry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

4.9.

Identification Reporting: No. WYSL - 22934

Permit No. WYG - 650002

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

**Quality Assurance/Quality Control OA/QC** 

Date: 6-9-14 | Time: 9440 | [] AM [] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 6-9-11   Time: 9:40   [] (M)] PM

# Analytical Records From: (Chevenne BOPU) Dry Creek WRF To: (Chevenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis	
[] Name of analyst	
[] All analyses are reported on dry weight basis	
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833	
[] Analytical quality assurance/quality control (QA/QC) available	
[] Analytical results available	
[] Chain of custody record	

Date: 6-9-14 Time: 9'40 [] AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Date and time of sample	
Name of analyst	
Analytical methods used	
Analyses and calculation results properly documented or verified	
All analysis are reported on dry weight basis with the exception of volatile s or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic ba 3150 grams).	
Volatile solids and total solids samples need to be analyzed six times a year Class B Biosolids and 12 times a year for Class A Biosolids.	for
Analytical quality assurance/quality control (QA/QC) available	
] Analytical results available	
] Chain of custody record	

Zone: C | Rows: 1 - 7 | Date: 6-9-14 Time: 9:40 | MM PM

# Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: Rows: 1 - 7 Date: 6-9-14 Time: 9:40 [] AM [] PM

Project Name: 6,050 / 6
Location: DVY CVEEK WRF.
Address: 8911 Campstoul Rd.
City: Cheyenve   State: Wy   Zip Code: 82007.
City: Cheyenve   State: Wy   Zip Code: 82007.  Samples Collected by: Chet Barbell. [Date/Time: 6-9-14/9; hul4m
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: DVY CVECK WRF.
Address: 8911 Cumpstool Bd.
City: Cheyenne   State: (124) Zip Code: 22007.
Name of Analyst: Kent Lgade.  This Cartification is signed by:
This Certification is signed by:
Date: 8/5/14 ] Time: /6:30 ] AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

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Page	A	of	_ /	

Client's Name:	Contact	t Name:	1							Name (if o	ther than Contact):_	
Report Required For:			Number of	ANAL	YSIS	RE	QUES	TED		Sample	Other	Analysis
			Containers	e markey					Preserved	<u>Type</u>	<u>Information</u>	Completed
The fact of the	51-7		Sample Type A W S V B O									
A service of the serv	<i>,</i>		<u>A</u> ir <u>W</u> ater	4 - 1				ŀ	HNO <sub>3</sub>	Grab	(pH, Field Analysis,	Yes / No
			Soils/Solids	Company of the last					H₂SO₄ 4°C	or Composite	etc.)	(Lab use only)
			<u>V</u> egetation						HCL.			
SAMPLE IDENTIFICATION	Collection C	Collection	<u>B</u> ioassay <u>O</u> ther						None			
(Name, Location, etc.)	Date	Time	MATRIX	14								
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MUST be						1		£ [ ]	Αij			II ii
Signed Sample Disposal:	Return to cli			Lab				/	1.3/12-		Log#	

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

#### Attachment: #4.

### Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Chevenne BOPU 8911 Campstool Road

Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 06/09/14

Date Received: 06/09/14

Sample Location: Zone D

Sample Matrix: Compost

Sampled By: CB

Date Reported: 6/24/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 06/10/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	61.0	45.0	<532
2	54.5	43.2	662
3	68.2	42.2	<476
4	70.6	43.0	1020
5	60.1	39.8	3473

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not/Apalyzed

Kent Loader, Laboratory Supervisor

6-24-14 Date:

## Dry Creek WRF Laboratory For: Fecal, TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Chevenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

**Quality Assurance/Quality Control OA/QC** 

Date: 6 -9-14 | Time: 9:50 | [] AM [] PM

## Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 6-9-14 ] Time: 9:50 ] [] AM [] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 6-9-14 Time: 9:50 [] AM ] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone:  $\mathcal{D}$  | Rows:  $\mathcal{L}$  -  $\mathcal{L}$  | Date:  $\mathcal{L}$  | Time:  $\mathcal{L}$  |  $\mathcal{L}$  | PM

# Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: | Rows: 1 - | Date: 6-9-14 | Time: 9,50 | [] AM [] PM

Project Name: 1050/165
Location: Dry Creek WRF.
Address: 89 11 Camps tool Rd.  City: Cheyenne   State: [1 Y  Zip Code: 32007.  Samples Collected by: het Beybl. Date/Time: 6-9-14/9:504
City: Cheyenne   State: [14] Zip Code: 32007.
Samples Collected by: Alt Bould Date/Time: 6-9-14/9:50/4
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 891/ CampsTouled.
City: Cheyenne State: Wy Zip Code: 82007.
Name of Analyst: fourt Local .  This Certification is signed by:
This Certification is signed by:
Date: 7/5/14   Time: 10:30   AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

	1		¥
Page	. 1	of	$X_{-}$ ,

Client's Name:	Conta	act Name:_			4	1:1/		Sampler's	Name (if o	ther than Contact):_	
Report Required For:	1.10 -54-	. C., "	Number of Containers Sample Type A W S V B O Air <u>W</u> ater <u>S</u> oils/ <u>S</u> olids	( )	'SIS	REQUEST	1 1	How <u>Preserved</u> HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C	Sample <u>Type</u> Grab or  Composite	Other <u>Information</u> (pH, Field Analysis, etc.)	Analysis Completed  Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	⊻egetation Bioassay Qther MATRIX		3			HCL None	Composite		
17-01-6 10 Romal	6-1	1 4 193	1)10 5,16 10 347 sty	graph is to disk the control of the	a des y de des de la composición de la			11	6		
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Custody Record MUST be		r Jeller	Date/Time:	OAI		Received by					Date/Time:
Signed Sample Disposal:	Return to		1 Permit	Lab di		al:	نائي جنور	1 672		20811	810

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

#### Attachment: #4.

### Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Chevenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 06/09/14 Date Received: 06/09/14

Sample Location: Zone E

Sample Matrix: Compost

Sampled By: CB

Date Reported: 6/24/14 Date Fecal Analyzed: NA

Date Solids Analyzed: 06/10/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/

	Row #	<b>Total Solids %</b>	Volatile Solids%	Dry Gram Sludge
1	1	75.6	30.8	1071
	2	64.0	35.7	<508

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

ent Loader, Laboratory Supervisor

6-24.14 Date:

### <u>Pry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

Quality Assurance/Quality Control OA/QC

Date: 6-9-11 | Time: 10:10 | [[AM/[] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 6-9-11/   Time: /() //()   [] AMI] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 6-9-11/ Time: 10:11) [] AM ]] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: E Rows: 1 - 2 Date: 6-9-14 Time: 10:10 [] AM [] PM

# Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: F | Rows: 1 - 2 | Date: 6-9-14 | Time: 0/0 | [] AM [] PM

Project Name: B/050 sid 5
Location: Dry Cilect WRF.
Address: 89/1 Cum p5/00/Rd,
City: Cheyenne   State: Wy   Zip Code: 82007.
Samples Collected by: Chat Band Date/Time: 6-9-14 # 10/10/11
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creck WRF.
Address: 8911 Campstool Rd.
City: Cheyenne State: Wy Zip Code: P2007.
Name of Analyst: Kent Load.
This Certification is signed by:
Date: 8/5/14 ] Time: 10:30 ] [] AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	7	of	1

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Client's Name:	Cont	act Name:				1.24			s Name (if	other than Contact):_	
Report Required For:	9		Containers	- ST	YSIS	REQ	JESTE	D How Preserv	Sample Type	Other Information	Analysis Completed
	1	1+2	Sample Type A W S V B O Air <u>W</u> ater <u>S</u> oils/ <u>S</u> olids <u>V</u> egetation <u>B</u> ioassay					HNO3 H2SO4°C HCL None		(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Other MATRIX	进							
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Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility false imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 04/21/14 Date Received: 04/21/14

Sample Location: Zone A Sample Matrix: Compost

Sampled By: CB

Date Reported: 5/23/14

Date Fecal Analyzed: 04/21/14 Date Solids Analyzed: 04/23/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19<sup>th</sup> Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/

5-23-14

Row #	<b>Total Solids %</b>	<b>Volatile Solids%</b>	Dry Gram Sludge
1	62.6	29.5	<520
2	65.1	37.4	554
3	56.3	39.0	<578
4	58.0	52.4	559
5	62.1	47.1	<523
6	69.5	41.5	<467
7	75.2	53.1	6,499
8	63.5	53.2	1,023
9	57.4	55.0	<565

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Lent Loader, Laboratory Supervisor

Date:

## **Dry Creek WRF Laboratory For: Fecal, TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 4-2/-// | Time: 10:30 | [AM] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 1 - 21 - 14   Time: 10! 30   [] AM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- [] Date and time of samples analysis
- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163
- Fax: 307-635-6833
- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Date: 4-21-14 Time: 10:30 [] (M) PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[]	Date and time of sample
[]	Name of analyst
[]	Analytical methods used
[]	Analyses and calculation results properly documented or verified
[]	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[]	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available
[]	Chain of custody record

Zone: A | Rows: 1 - 9 | Date: 4 - 2/-14 Time: /0130 AM | PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone:  $\mathcal{A}$  Rows:  $\mathcal{A}$  Date:  $\mathcal{A} = \mathcal{A} = \mathcal{A}$  Time:  $\mathcal{A} = \mathcal{A}$  [] PM

Project Name: 3,050 1 ds
Location: Dry Creek WRF.
Address: 8911 Cum p57001 Rd.
City: Cheyenne   State: Wy   Zip Code: 72007.
Samples Collected by: Chet Bandle Date/Time: 71-21-14/10;30pm
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 8911 Cumpstal Rd.
City: Cheyenne   State: 1   Zip Code: 82007
Name of Analyst: Kent Local.
This Certification is signed by:
Date: 8-5-14   Time: 10:30   MAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	1	of	2
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Client's Name:	Cook W	<u>⊥R</u> F Conta	ct Name: <u>〈</u>	- Author	ſ	) }	11/1	11	Sampler's l	Name (if o	other than Contact):_	
Report Required I	For: Brosolic	15			ANALY	SIS 	REQUE	STED	How Preserved	Sample <u>Type</u>	Other Information	Analysis <u>Completed</u>
2011 × H	Rows	-7		Sample Type A W S V B O Air <u>W</u> ater Soils/Solids <u>V</u> egetation <u>B</u> ioassay					HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Loca		Collection Date	Collection Time	<u>O</u> ther MATRIX	E							
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Record MUST be		·		10 - 30				· I (A	T.			40° = , =
Signed	Sample Disposal:	Return to			Lab dis			,			Log#	735

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

**Pink - Client** 

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

	-			
Page _	part in	of	50.	

Client's Name:/	COST MA	RF Con	tact Name:_	$\triangle h_{i}f$		J.	1 57		1	:	Sampler's	Name (if o	ther than Contact):_	
Report Required				Number of Containers Sample Type	8,	ALY	(SIS	RE	QUES	TED	How Preserved	Sample	Other Information	Analysis Completed
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SAMPLE IDEI (Name, Loc		Collection Date	Collection Time	Other MATRIX	527 S.	-	1				None		4	
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			Date/Time: Received by:							Date/Time:				
Signed	Sample Disposal:	Return to	at the second section				spos						Log#	797
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Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

#### Attachment: #4.

#### Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management I.D (if necessary) (including practices in part practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction practices requirements, the management and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163

Fax: 307-635-6833

Date Sampled: 04/21/14

Date Received: 04/21/14

Sample Location: Zone C Sample Matrix: Compost

Sampled By: CB

Date Reported: 5/23/14

Date Fecal Analyzed: 04/21/14 Date Solids Analyzed: 04/23/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18<sup>th</sup> Ed 9221E (A-1 Media)

#### Fecal Coliform/

5.23-14

Row #	<b>Total Solids %</b>	<b>Volatile Solids%</b>	Dry Gram Sludge
1	58.3	47.9	<556
2	62.2	60.4	<523
3	68.6	38.1	<473
4	64.5	42.2	2,207
5	62.2	40.7	522
6	59.9	36.7	1,084
7	60.1	33.3	<540

#### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Loader, Laboratory Supervisor

#### Dry Creek WRF Laboratory For: Fecal, TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Chevenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

**Quality Assurance/Quality Control OA/QC** 

Date: 4-21-14 | Time: 10:30 | [] AM [] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 4-21-14 Time: 10130 [[(AM)]] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

П	Date	and	time	οf	camn	lee	ana	lveie
ш	Date	aшu	ume	UΙ	<b>Заш</b> р	1162	апа	17515

- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163

Ph: 307-635-3163 Fax: 307-635-6833

- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[]	Date and time of sample
	Name of analyst
[]	Analytical methods used
[]	Analyses and calculation results properly documented or verified
	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[]	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available
	Chain of custody record

Zone: C | Rows: 1 - 7 | Date: 4-2/-14 | Time: 10:30 | [] AM [] PM

### Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: Rows: [-7] Date: [-2/-14] Time: [0:30] [] AM [] PM

Project Name: Biosolids.
Location: Dry Creek WRF.
Address: 8911 Camp 5 toul Rd.
City: Cheyenne   State: Luy   Zip Code: 8 2007.
City: Cheyenne   State: Ly   Zip Code: 3 2007.  Samples Collected by: Chet Bould. [Date/Time: 4-2/-/4/10:30 Am
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Creek WRF.
Address: 8911 Campstoul Rd.
City: Cheyenne   State: 1 Zip Code: 82007.
Name of Analyst: Leat Loader.
This Certification is signed by:
Date: 8-5-14   Time: /0:30   DAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

Page		of <u>/</u>	
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Client's Name:	MERCE N	////Contact	ct Name:				fish		Sampler's I	Name (if o	ther than Contact):_	~
Report Required	For: 15, 05 0 1.1			Containers	ANALY	SIS	REQ	UEST	How <u>Preserved</u>	Sample <u>Type</u>	Other <u>Information</u>	Analysis Completed
2011 C ROLU 1-7				Sample Type A W S V B O Air <u>W</u> ater <u>S</u> oils/ <u>S</u> olids <u>V</u> egetation <u>B</u> ioassay		3,			HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDEN (Name, Local		Collection Date	Collection Time	Other MATRIX	P	- Control	j.					
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5		and transport							-			
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Custody Record MUST be	Relinquished by: 🔿	it in	Party.	Date/Time:	- 11 1.h/	7	Receiv	red by:	<i>,</i> [		·	Date/Time:
Signed	Sample Disposal:	Return to	client:		Lab di	spos	al:				Log#	700

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

#### Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 04/21/14

Date Received: 04/21/14

Sample Location: Zone D Sample Matrix: Compost

Sampled By: CB

Date Reported: 5/23/14

Date Fecal Analyzed: 4/21/14 Date Solids Analyzed: 04/23/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	76.2	36.9	<426
2	61.3	43.9	<530
3	75.8	46.0	<428
4	59.6	38.4	<545
5	71.4	37.0	934

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent/Loader, Laboratory Supervisor

### **Dry Creek WRF Laboratory For: Fecal, TS & VS**

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

#### (Chevenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 4-21-14 | Time: 10:30 | [ AM] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date:

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples a	analysis
-------------------------------	----------

- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163

Fax: 307-635-6833

- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[]	Date and time of sample
	Name of analyst
[]	Analytical methods used
[]	Analyses and calculation results properly documented or verified
[]	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
	Analytical results available
[]	Chain of custody record

Zone: 1 - 5 Date: 4-2/ Time: 10:30 [] AM ]] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: [] Rows: 1 - 5 Date: 4-2/-14 Time: 10:30 [] AM [] PM

Project Name: <u>Bio501id5</u>
Location: Dry Creek WRF.
Address: 39/1 CampsTouRd.
City: Cheyenne   State: Wy   Zip Code: 82007.
Samples Collected by: Ch of Bankel [Date/Time: 4-21-14 f 10'3 C/Ans
Analytical Certification
That, hear Corementon
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dvy CVEEK WRF.
Address: 8911 Campstour Rd.
City: Cheyenne   State: Wy   Zip Code: 82007.
Name of Analyst: Loe de .  This Certification is signed by:
This Certification is signed by:
Date: 8-5-14   Time: 1030   JAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	 of	1
5-	 ٠.	

Client's Name: 1	4 6 201	Cont	act Name:_	1 hat		÷ (11)	/ in			Sampler's	Name (if o	ther than Contact):_	
Report Required	For July In	/c.		Number of	ANA	LYSIS I	REC	UEST	ED	How	Sample	Other	Analysis
				Containers Sample Type					,	Preserved	Type	Information	Completed
- 12 (11 6 ).	) New /	and the same of		AWSVBO	e Sala Ge					HNO₃	Grab	pH, Field Analysis,	Yes / No
				<u>Air W</u> ater <u>S</u> oils/ <u>S</u> olids	-					H₂SO₄ 4°C	or Composite	etc.)	(Lab use only)
				<u>V</u> egetation <u>B</u> ioassay	13 43					HCL	Composito		
SAMPLE IDE		Collection Date	Collection Time	<u>O</u> ther	33 1	- 3				None			
(Name, Loc	ation, etc.)	Ly 1)2		MATRIX		· ·		+			part of the same o		
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	ID# 10 1/10 1		1/4//	Pormit	- 44	1.1	. V /	l'am	1	( Carl			

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

#### Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

#### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



#### ANALYTICAL RESULTS

#### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 04/22/14

Date Received: 04/22/14

Sample Location: Zone E Sample Matrix: Compost

Sampled By: CB

Date Reported: 4/23/14

Date Fecal Analyzed: 04/22/14 Date Solids Analyzed: 04/23/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

#### Fecal Coliform/

Row #	<b>Total Solids %</b>	Volatile Solids %	Dry Gram Sludge			
1	75.5	31.7	859			
2	73.6	26.9	441			
3	72.6	23.9	496			
4	67.0	67.0 38.0				
5	71.3	41.3	<455			

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

### Dry Creek WRF Laboratory For: Fecal, TS & VS

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

**Quality Assurance/Quality Control OA/QC** 

Date: 4-22-14 | Time: 3 45 | [] AM | PM

## Analytical Sampling Records (Chevenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 4-22-14   Time: 8145   [] AM []/PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

- [] Date and time of samples analysis
- [] Name of analyst
- [] All analyses are reported on dry weight basis
- [] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163

Fax: 307-635-6833

- [] Analytical quality assurance/quality control (QA/QC) available
- [] Analytical results available
- [] Chain of custody record

Date: 4-22-14 Time: 8:45 [[AM/[] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[]	Date and time of sample
[]	Name of analyst
[]	Analytical methods used
[]	Analyses and calculation results properly documented or verified
[]	All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[]	Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[]	Analytical quality assurance/quality control (QA/QC) available
[]	Analytical results available
[]	Chain of custody record

Zone: Rows: - 5 Date: 4-22-14 Time: 7,45 [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: F Rows: 1 - 5 Date: 11-22-1 Time: 8 14.0 [] AM [] PM

Project Name: B/OSO 1165
Location: DVY Creek WRF
Address: 39/1 Camps/w/RJ
City: Cheyenne   State: 10 4   Zip Code: 7200.
Samples Collected by: Chit Benkl/ [Date/Time: 4-21-14/8:45.]
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Next with
Address: 89/1 CampsToc/RJ
City: Chelenne   State: 1   Zip Code: 82007.
Name of Analyst: Lost Jay .
This Certification is signed by:
Date: 7-7-14   Time: 10:30   XAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

	1		1
Page	/	of	./

Client's Name:	11.	1.	Cont	act Name:_	//		1	6 13			_	Sampler's	Name (if o	ther than Contact):_	
Report Required	4	1.	1/		Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation		ALY	SIS	REQU	JEST	ED	How <u>Preserved</u> HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	Sample	Other Information (pH, Field Analysis, etc.)	Analysis <u>Completed</u> Yes / No (Lab use only)
SAMPLE IDE (Name, Loc		ON	Collection Date	Collection Time	<u>B</u> ioassay <u>Q</u> ther MATRIX	9.3 14.2	games.					None			
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Signed	Sample Disp	oosal:	Return to	client:	Da		b dis	spos	al:			e ez le		Log#	501

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out))) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for possibility certification including the imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163

Fax: 307-635-6833

Date Sampled: 02/24/14

Date Received: 02/24/14

Sample Location: Zone A

Sample Matrix: Compost

Sampled By: CB

Date Reported: 3/12/14

Date Fecal Analyzed: 02/24/14

Date Solids Analyzed: 02/27/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Fecal Coliform/

3.12.14

Row #	<b>Total Solids %</b>	Volatile Solids%	Dry Gram Sludge
1	71.4	22.5	<455
2	76.6	20.6	<424
3	62.0	23.0	<524
4	67.0	35.3	484
5	70.0	26.4	<463
6	66.5	35.7	<489
7	68.4	30.3	<474
8	62.6	38.7	<520
9	67.0	42.4	<485

**Comments:** 

All data-meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA ≠ Not Analyzed

Kent Loader, Laboratory Supervisor

### <u>Pry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Chevenne BOPU) Dry Creek Water Reclamation Facility

**Samples and Analytical** 

Quality Assurance/Quality Control OA/QC

Date: 2-2y-14 | Time: 10:00 | [] AM/[] PM

## Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected	
[] Sampling location documented	
[] Sampling types appropriate	
[] Sampling volumes recorded	
[] Name of person sampling	
[] Types of sampling containers	
[] Methods of preservation	
[] Sampling quality assurance/ quality control QA/QC available	
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503. (Class A and B Biosolids)	13)
[] Certification statement signed with each laboratory analytical report:	
1. Pathogen reduction	
2. Vector attraction reduction operates at Dry Creek WRF analysis sam Results from daily sheets and results, recorded daily.	ples.
3. Management Practices	
4. Site restrictions	
[] Class A sludge: average temperature, (volatile solids percent) and total s Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u>	
[] Chain of custody recorded	
Date: 2-211-111 Time: 10;00	M) PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 2-24-14 Time: 10:00 [] AM/[] PM

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: A Rows: 1 - Date: 2 - 24-14] Time: 10:00 [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: A Rows: 1 - 9 Date: 2-24-14 Time: 16:00 MAM [] PM

Project Name: <u>B10501, 15</u>									
Location: Dry Creek WRF.									
Address: 7911 Campstoul Rd.									
City: Cheyenny   State: Luy   Zip Code: 8207.									
City: Cheyenny   State: Luy   Zip Code: 82007.  Samples Collected by: Chet Ball. [Date/Time: 2 - 24 - 24/10/d/A.m.)									
Analytical Certification									
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.									
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."									
Name of Laboratory: Dry Crcek wife.									
Address: 7/1/ Camps rail Ad.									
City: Cheyenny   State: $U/$   Zip Code: $32007$ .									
Name of Analyst: lent Lough.									
This Certification is signed by:									
Date: 4-10-14   Time: 8     YAM [] PM									

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

	ē			
Page		_ of _	1	_

Client's Name: Dry Creek with Contact Name: Sampler's Name (if other than Contact):												
Report Required For:			Number of Containers	ANA	LYS 	IS F	REQUES	1	How Preserved	Sample Type	Other Information	Analysis Completed
Zone A Rows 1-7				Terline Mer.					HNO3 H2SO4	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	<u>O</u> ther MATRIX	75	<u> </u>	7	10					
12011e A Row I	2-20	1.25 Asu	1100 m = 1	-	1000				1,114	G		
2			Mary Cons	- Contraction	-	4			***	a major (Amano		
3		ed of the state of	and the second s	graduate sometimes for	-					an y die delagrange		
4		and the state of t	e Oliveiro de la constitución de	1 plan delp-prove standard + 8	-				Professional and the	eroper TV spring group.		
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Custody Record MUST be	f guil	4, 1	Date/Time:		Received by:		<b>/:</b>				Date/Time:	
Signed Sample Disposal:	Return to	Lab disposal:							Log#	701		

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	1	_ of .	Lance	

Client's Name: Sampler's Name (if other than Contact):															
Report Required I	For:			Number of	AN	AL	SIS	RE	QUE	ST	ED	How	Sample	Other	Analysis
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	,			Sample Type			ļ								
	103	j		AWSVBO								HNO₃	Grab	pH, Field Analysis,	Yes / No
and held	W 12.2	f .		<u>Air Water</u>						Į		H₂SO₄	or	etc.)	(Lab use only)
				Soils/Solids Vegetation	100					ı			Composite	·	
				Bioassay	. ,3					- 1		HCL None			
SAMPLE IDEN	NTIFICATION	Collection	Collection	Other	(e)	$\mathbb{N}$	1					NONE			
(Name, Loca		Date	Time	MATRIX	Lan.	-	2								
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			1 199												

Permit # \_\_\_\_

Copies to: White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction alternatives in Part I.C.3, the management I.D (if necessary) (including practices in part practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 02/24/14

Date Received: 02/24/14

Sample Location: Zone C

Sample Matrix: Compost

Sampled By: CB

Date Reported: 3/12/14

Date Fecal Analyzed: 02/24/14 Date Solids Analyzed: 02/27/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge
1	65.5	30.1	<495
2	63.3	29.2	<514
3	57.5	34.1	564
4	62.2	34.1	<523
5	62.1	40.1	522
6	57.9	38.6	<562
7	56.6	41.2	<574

### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = N o Analyzed

Kent Loader, Laboratory Supervisor

3.12.14

### <u>Dry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-24-14 | Time: 10:00 | [] AM [] PM

### <u>Analytical Sampling Records</u> (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 2-24 - 14   Time: 10 00   1   AM [] PM

# Analytical Records From: (Chevenne BOPU) Dry Creek WRF To: (Chevenne BOPU) Dry Creek WRF Laboratory

Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

# Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
Chain of custody record

Zone: C | Rows: 1 - 7 | Date: 2-24-14 | Time: 10100 | [AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: C | Rows: 1 - 7 | Date: 2 - 24 - 14 | Time: 10 / 00 | [] AM [] PM

Project Name: Bi 0501.d5
Location: Dry Creek Wester RF
Address: 8911 Cum 05 Toul Ad
City: Cheyenne State: Wy Zip Code: 82007.
City: Cheyenne   State: W   Zip Code: 82007.  Samples Collected by: Chet Benker. Date/Time: 2-24-14/103000 /2
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Ciek Curk .
Address: 8911 cam pstcc1 RJ
City: Cheyenne   State: 11/   Zip Code: 82007.
Name of Analyst: Lent Coade.
This Certification is signed by:
Date: 4-10-14   Time:       AM     PM

# **Cheyenne Board of Public Utilities Water Reclamation Laboratory**

Chain of Custody and Analytical Request Record PLEASE PRINT CLEARLY, provide as much information as possible

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Page		of	

Client's Name: 1 Client's Name: 1	Contact Name:	1	1 September	Sampler's Name (if o	other than Contact):_	ш
Report Required For: ユルカモ C 犬ャルシー	7	Number of Containers Sample Type A W S V B O Air Water	ANALYSIS REQUEST	HNO <sub>3</sub> Sample    Preserved Type   HNO <sub>3</sub> Grab	Other Information (pH, Field Analysis,	Analysis Completed  Yes / No
SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Collection Date Time	Soils/Soilds Vegetation Bioassay Other MATRIX	23	H <sub>2</sub> SO <sub>4</sub> or 4°C Composite HCL None	etc.)	(Lab use only)
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5 1 1	1, 1	1		1		
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7 1 1 1 7	14 14	1	3 3	1. 1.	* 7	,
Custody Record MUST be	Barkel	Date/Time:	Received by:			Date/Time:
Signed Sample Disposal:	Return to client:	D 144	Lab disposal:		Log#	733

Copies to:

White - Book in Laboratory

Yellow - Laboratory Hard Copy

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management part I.D (if necessary) (including the practices in practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 02/24/14

Date Received: 02/24/14

Sample Location: Zone D Sample Matrix: Compost

Sampled By: CB

Date Reported: 3/12/14

Date Fecal Analyzed: 02/25/14 Date Solids Analyzed: 02/27/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row #	<b>Total Solids %</b>	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge			
1	75.2	36.3	<432			
2	71.5	37.8	504			
3	75.7	35.7	476			
4	64.4	36.5	504			
5	72.0	37.7	1000			

**Comments:** 

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory.

NA = Not Analyzed

Kent Loader, Laboratory Supervisor

9-10-14

### <u>Dry Creek WRF Laboratory</u> <u>For: Fecal, TS & VS</u>

Identification Reporting: No. WYSL - 22934

Permit No. WYG - <u>650002</u>

### (Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control OA/QC

Date: 2-24-14 | Time: 10100 | [] AM [] PM

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 7-24-11   Time: 10100   [] (M/[] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis
[] Name of analyst
[] All analyses are reported on dry weight basis
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Date: 2- 21 -11 Time: 10100 [[AM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

] Date and time of sample
] Name of analyst
] Analytical methods used
Analyses and calculation results properly documented or verified
All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
Analytical quality assurance/quality control (QA/QC) available
] Analytical results available
] Chain of custody record

Zone: 1 - 5 Date: 2-24-11 Time: 101/100 [] AM [] PM

### Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: 1 | Rows: 1 - 7 | Date: 2-24-11 | Time: 10'(2) | AM [] PM

Project Name: B1050 1, £5
Location: Nry Crept WRF.
Address: 89 // Camps Tou/ Rd.
City: Cheyenne   State: WY   Zip Code: 82007.
City: Cheyenne   State: U'y   Zip Code: 82007.  Samples Collected by: Che Benkell .[Date/Time: 2-24-14/10/co/Am
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: DVY CVEEK WAF
Address: 7911 Campsroul RV.
City: Cheyenne   State: WY   Zip Code: P2007.
Name of Analyst:  This Certification is signed by:
This Certification is signed by:
Date: 4-10-14   Time:       AM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page	1	of	1
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Client's Name:	Contact	Name:	A.J.	-	1		j,		Sampler's	Name (if o	ther than Contact):_	
Report Required For:				ANA	LYSI	SRI	EQUE	STED	How	Sample	Other	Analysis
720118 D Row 1-	49		ontainers	100					Preserved	<u>Type</u>	Information	Completed
Bussolds		A V <u>A</u> <u>S</u> o <u>V</u> e	mple Type W S V B O Air Water bils/Solids egetation Bioassay	San					HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION		ollection	<u>O</u> ther	2 1					110110			
(Name, Location, etc.)		3 .	MATRIX	t-reference	1 2		$\perp$					
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Custody Relinquished by:		Da	ite/Time:	.,		Re	ceived	by:	İ			Date/Time:
Record MUST be	milel		4 24	ئے = ۔ (ایران	Kil		i lii					
Signed Sample Disposal:	Return to clie	ent:			dispo				/ / / To	**	Log#	794

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

Pink - Client

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5. Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.



### ANALYTICAL RESULTS

### DRY CREEK WWTP LABORATORY

Cheyenne BOPU 8911 Campstool Road Cheyenne, Wyoming 82007 Phone: 307-635-3163 Fax: 307-635-6833

Date Sampled: 02/25/14

Date Received: 02/25/14

Sample Location: Zone E Sample Matrix: Compost Sampled By: CB

Date Reported: 3/12/14

Date Fecal Analyzed: 02/25/14 Date Solids Analyzed: 02/27/14

Analyst(s): mw

EPA Method/Total Solids:

SM 19th Ed 2540B

EPA Method/Volatile Solids: SM 19th Ed 2540E

EPA Method/Fecal Coliform: SM 18th Ed 9221E (A-1 Media)

Row#	Total Solids %	Volatile Solids%	Fecal Coliform/ Dry Gram Sludge			
1	79.6	27.0	<408			
2	78.3	32.5	<414			
3	65.3	35.9	<498			
4	73.0	29.8	<445			
5	71.0	37.5	<458			

### **Comments:**

All data meets QA/QC requirements; please see QA/QC files in Dry Creek Laboratory. NA = Not Analyzed

Kent Loader, Laboratory Supervisor

9-10-14

### Analytical Sampling Records (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected
[] Sampling location documented
[] Sampling types appropriate
[] Sampling volumes recorded
[] Name of person sampling
[] Types of sampling containers
[] Methods of preservation
[] Sampling quality assurance/ quality control QA/QC available
[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)
[] Certification statement signed with each laboratory analytical report:
1. Pathogen reduction
2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions
[] Class A sludge: average temperature, (volatile solids percent) and total solids Dry sludge) once a month. Turn rows once a month, <u>weather permitting</u> .
[] Chain of custody recorded
Date: 2-25-14   Time: 9:15- 1 [] AM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Date and time of samples analysis	
[] Name of analyst	
[] All analyses are reported on dry weight basis	
[] Dry Creek WRF Laboratory 8911 Campstool Rd. Cheyenne, WY 82007 Ph: 307-635-3163 Fax: 307-635-6833	
[] Analytical quality assurance/quality control (QA/QC) available	
[] Analytical results available	
[] Chain of custody record	

Date: 2-25-11 Time: 9/15 [] AM [] PM

## Analytical Records From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of sample
[] Name of analyst
[] Analytical methods used
[] Analyses and calculation results properly documented or verified
[] All analysis are reported on dry weight basis with the exception of volatile solids or total solids in percent. (1quart plastic bag 450 grams) (7 quart plastic bags 3150 grams).
[] Volatile solids and total solids samples need to be analyzed six times a year for Class B Biosolids and 12 times a year for Class A Biosolids.
[] Analytical quality assurance/quality control (QA/QC) available
[] Analytical results available
[] Chain of custody record

Zone: F Rows: 1 - 5 Date: Time: 9/15 [] AM [] PM

## Analytical Sample Containers From: (Cheyenne BOPU) Dry Creek WRF To: (Cheyenne BOPU) Dry Creek WRF Laboratory

Dry Sludge for fecal results in MPN, and percent solids for Class A or Class B Biosolids. 1 quart Plastic bags 450 grams: 7 Quart Plastic bags total of 3150 grams. Fecal samples and results are analyzed at the Dry Creek WRF Laboratory in with six hours of the holding time. The results of fecal samples in (MPN) and (percent solids) need to be analyzed in, \*February, April, June, August, October, and December. \*\*January, March, May, July, September and November; test for TS and VS. Class A test for Helminth ova density limits > 1 egg/4g TS; Enteric virus density limits of > 1 PFU/4g

- 1. \*' \*\*Class A sludge < 1000 MPN/gram. (Test 12 times a year for TS and VS).
- 2. \* Class B sludge < 2,000,000 MPN/gram
- 3. Percent solids, 75 % or better for Class A Biosolids and Class B Biosolids.
- 4. Chain of custody record

Zone: Rows: 1 - 5 Date: 2 25-111 Time: 9:15 [] AM [] PM

Project Name: B/050/id 5
Location: Dry Creek WRF
Address: 8911 Canp 5 tool Rt
City: Cheyenne   State: [WY] Zip Code: \$200].
Samples Collected by Chet Bank. (Date/Time: 2 -25-14/9/15 Hm
Analytical Certification
This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report.
"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for wastewater under the latest revision to 40 CFR Part 503 Sludge Regulation. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing, the wastewater samples and generating the report (s), the analysis, report, and information submitted is to the best on my knowledge and belief, true, accurate, and completed."
Name of Laboratory: Dry Cieck LCKF.
Address: 8911 CampsToc/Rd
City: Cheyenne State: Wy Zip Code: 87-00.7
Name of Analyst: Lout Coad.
This Certification is signed by:
Date: 4-10-14   Time: 8   JAM [] PM

# Cheyenne Board of Public Utilities Water Reclamation Laboratory

Chain of Custody and Analytical Request Record
PLEASE PRINT CLEARLY, provide as much information as possible

Page		of	ji ————————————————————————————————————
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Client's Name:	1017	Contact Name:_						Sampler's l	Name (if o	ther than Contact):_	
Report Required For:	Number of Containers Sample Type	1036	YSIS	REQ	UESTED	How <u>Preserved</u>	Sample Type	Other Information	Analysis Completed		
End Endo	•	9	A W S V B O Air <u>W</u> ater <u>S</u> oils/ <u>S</u> olids <u>V</u> egetation <u>B</u> ioassay					HNO₃ H₂SO₄ 4°C HCL None	Grab or Composite	(pH, Field Analysis, etc.)	Yes / No (Lab use only)
SAMPLE IDENTIFICATION (Name, Location, etc.)		ection Collection ate Time	Other MATRIX	1	101			140.10			
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7								UA.			
Custody Record MUST be	lby:	I.X	Date/Time:	T A	1		ved by:	17/17			Date/Time:
Signed Sample Disp		eturn to client:	Dame:		lispos	-				Log#	705

Copies to:

White - Book in Laboratory

**Yellow - Laboratory Hard Copy** 

**Pink - Client** 

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5.

### Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in \* VS out))) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

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#### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

verage	2.88			2.85			2.74			2.72		Page 1
otal	25.93			19.97			13.69			13.62		
9	2.75	<565										
8	3.01	1023										
7	3.81	6499	7	2.73	<540							
6	2.67	<467	6	3.04	1084							
5	2.72	<523	5	2.72	522	5	2.97	934	5	2.66	<455	
4	2.75	559	4	3.34	2207	4	2.74	<545	4	2.69	<485	
3	2.76	<578	3	2.67	<473	3	2.63	<428	3	2.70	496	
2	2.74	554	2	2.72	<523	2	2.72	<530	2	2.64	441	
1	2.72	<520	1	2.75	<55€	1	2.63	<426	1	2.93	859	
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	
Zone A			Zone C			Zone D			Zone E			
4/21/2014									4/22/2014			
Date							7		Date			
Average	2.69			2.73			2.74			2.65		
<b>Total</b>	24.17			19.10			13.72			13.23		
9	2.69	<485										
9	2.72	<520										_
7	2.69	<474	7	2.76	<574							-
6	2.69	<489	6	2.75	<562							
5	2.67	<463	5	2.72	522	-	3.00	1000	5	2.66	<458	
4	2.72	484	4	2.72	<523		2.70	504		2.65	<445	-
3	2.72	<524	3	2.75	564	+	2.68	476		2.70		
2	2.63	<424	2	2.71	<514		2.70	504		2.62	<414	-
1	2.66	<455	1	2.69	<495	-	2.64	<432		2.61	<408	_
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	1
Zone A			Zone C			Zone D			Zone E			
2/24/2014					-				2/25/2014			
Date									Date	- 555		
Dry Creek WR	F											
2014 Geomet	ric means.											

												Page 2
Average	2.71			2.66			2.70			2.65		
Total	24.41			18.63			13.51			2.65		
9	2.99	986										
8		986	3									
7	2.72 2.65	519 <445	7	2.67	469						-	
6	2.73	<538	6	2.61	<410							
5	2.69	<491	5	2.64	<441		2.69	<495				
4	2.71	<517	4	2.66	<455		2.74	<551				
3	2.63	<429	3	2.69	<494		2.72	<527			*	
2	2.66	<456	2	2.70	<498		2.71	<511				
1	2.63	<424	1	2.66	<453		2.65	<442	1	2.65	<446	
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	Row	GM	MPN/gm	
Zone A			Zone C			Zone D			Zone E			
8/26/2014			8/25/2014			8/25/2014			8/26/2014			
Date			Date			Date			Date			
Average	2.96			3.05			2.95			2.87		
Total	26.61			21.36			14.77			5.74		
	20.04			24.25			44.77					
9	2.99	984	19									
8	3.61	4031	ii.									
7	2.62	417	7	2.681241	<480					-		
6	3.34	2209	6		<555							
5	2.66	<456	5		3526		3.540705	3473			1	
4	3.33	2151	4	2.718502	<523	<del></del>	3.0086	1020				
3	2.70	<501	3		2822			<476			.500	
2	2.69	488	2		<472		2.820858	662	2	2.705864	<508	
1	2.67	<470	1		3494			<532	1	3.029789	1071	
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm	
Zone A			Zone C	•		Zone D			Zone E			
Oate 6/9/2014									Date 6/9/2014			

Date			Date			Date				
10/27/2014										
Zone A			Zone C			Zone D				
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm		
1	2.60	<402	1	2.62	<415	1	2.64	<441		
2	2.62	<419	2	2.63	<423	2	2.64	<432		
3	2.65	<444	3	2.61	<411	3	2.64	<438		
4	2.60	<396	4	2.66	<460	4	2.66	<459		
5	2.68	<476	5	2.67	<465	5	3.15	1412		
6	2.94	864	6	2.67	<463					
7	2.65	<445	7	2.65	<443					
8	2.63	<424								
9	2.69	<489								
Total	24.05	=		18.50			13.73			
Average	2.67			2.64			2.75			
Average	2.07			2.04			2.75			
12/29/2014										
Zone A			Zone C			Zone D				
Rows	GM	MPN/gm	Rows	GM	MPN/gm	Rows	GM	MPN/gm		
1	2.63	<428	1	2.66	<458	1	2.69	490		
2	2.63	<431	2	2.72	<527	2	2.70	<501		
3	2.68	477	3	2.70	<497	3	2.66	<453		
4	2.76	<576	4	2.63	<431	4	2.66	<461		
5	2.69	<489	5	2.73	<541					
6	2.66	<459	6	2.71	<509					
7	2.67	<466	7	2.66	<454					
8	2.66	<454								
9	2.67	<463								
Total	24.05			18.81			10.71			
Average	2.67			2.69			2.68			
										Page 3

### Attachment: #4. Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.

The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #5.

### Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in - ((VS in \* VS out)) (Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.

RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for certification including the possibility false imprisonment.

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

#### CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

### Attachment: #7.

### Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class  $\underline{A}$  and  $\underline{B}$  which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The <u>Class B</u> Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The <u>Class A</u> pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

#### CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices the and restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.